USDA United States Department of Agriculture

Draft Environmental Impact Statement for the Draft Revised Forest Plan

Custer Gallatin National Forest

Volume 2: Appendices

Forest Service Northern Region Publication No. R1-19-08 March 2019

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Custer Gallatin National Forest Title Page: Photo Credit Top left to right – Aspen budding in spring, CGNF, M. Leuschen-Lonergan; Spring green on the Sioux Ranger District, K. Hansen, CGNF; Arrowleaf Balsomroot blooms in early spring, Sypes Canyon, Bozeman R.D., M. Leuschen-Lonergan; House Rock, high spring runoff, Gallatin Canyon, Bozeman R.D., M. Leuschen-Lonergan; Early spring crocus blooms on forest, M. Leuschen-Lonergan; spring emergence, bear on sypes trail, Bozeman R.D., T. Orr; Bozeman Field School on field trip with Forest Plan Revision specialists, M. Leuschen-Lonergan, Custer Gallatin National Forest, Cattle graze on Ashland R.D., Custer Gallatin National Forest.

Note: We make every effort to create documents that are accessible to individuals of all abilities; however, limitations with our word processing programs may prevent some parts of this document from being readable by computer-assisted reading devices. If you need assistance with this document, please contact the Custer Gallatin National Forest at (406) 587-673:

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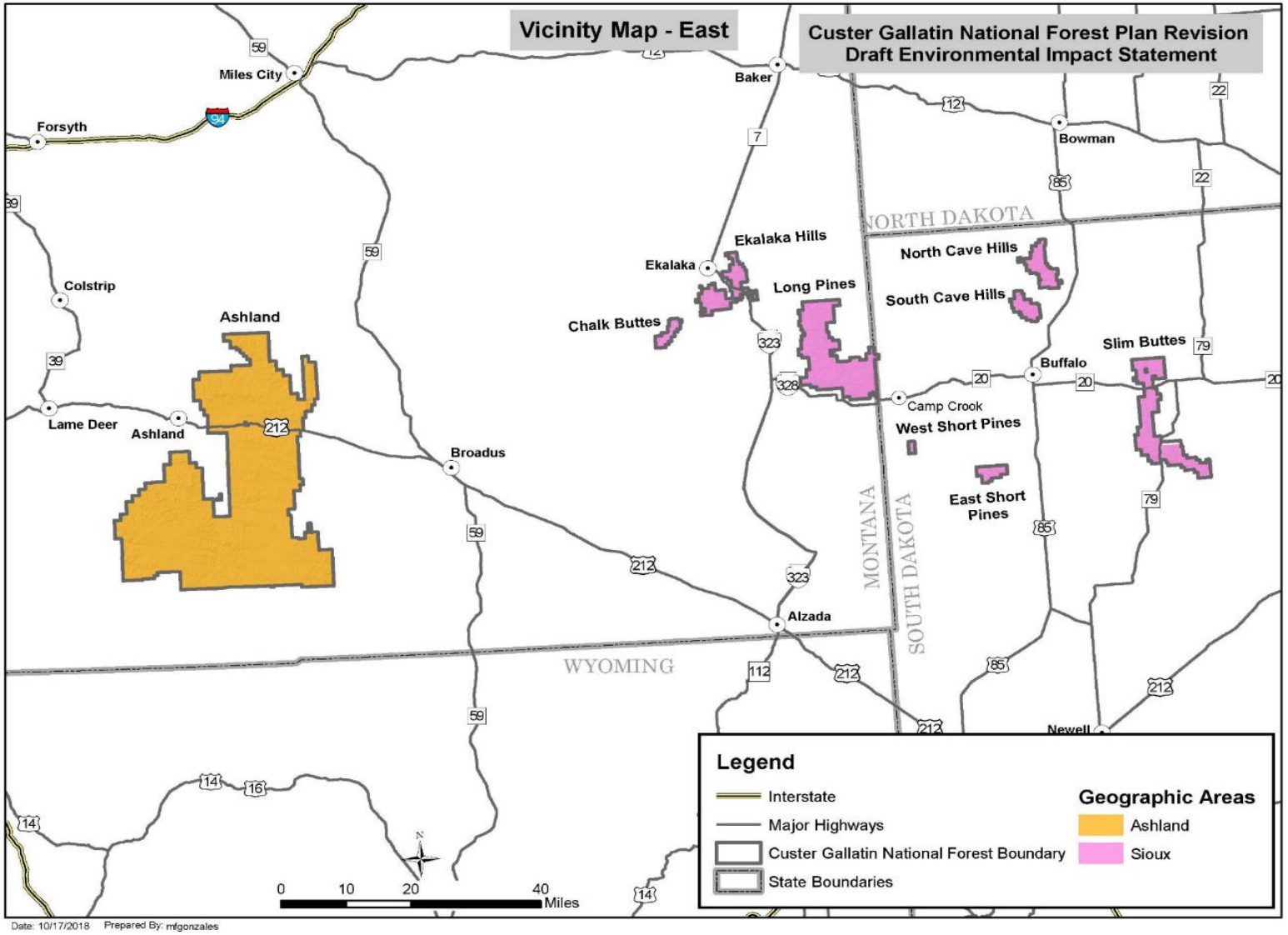
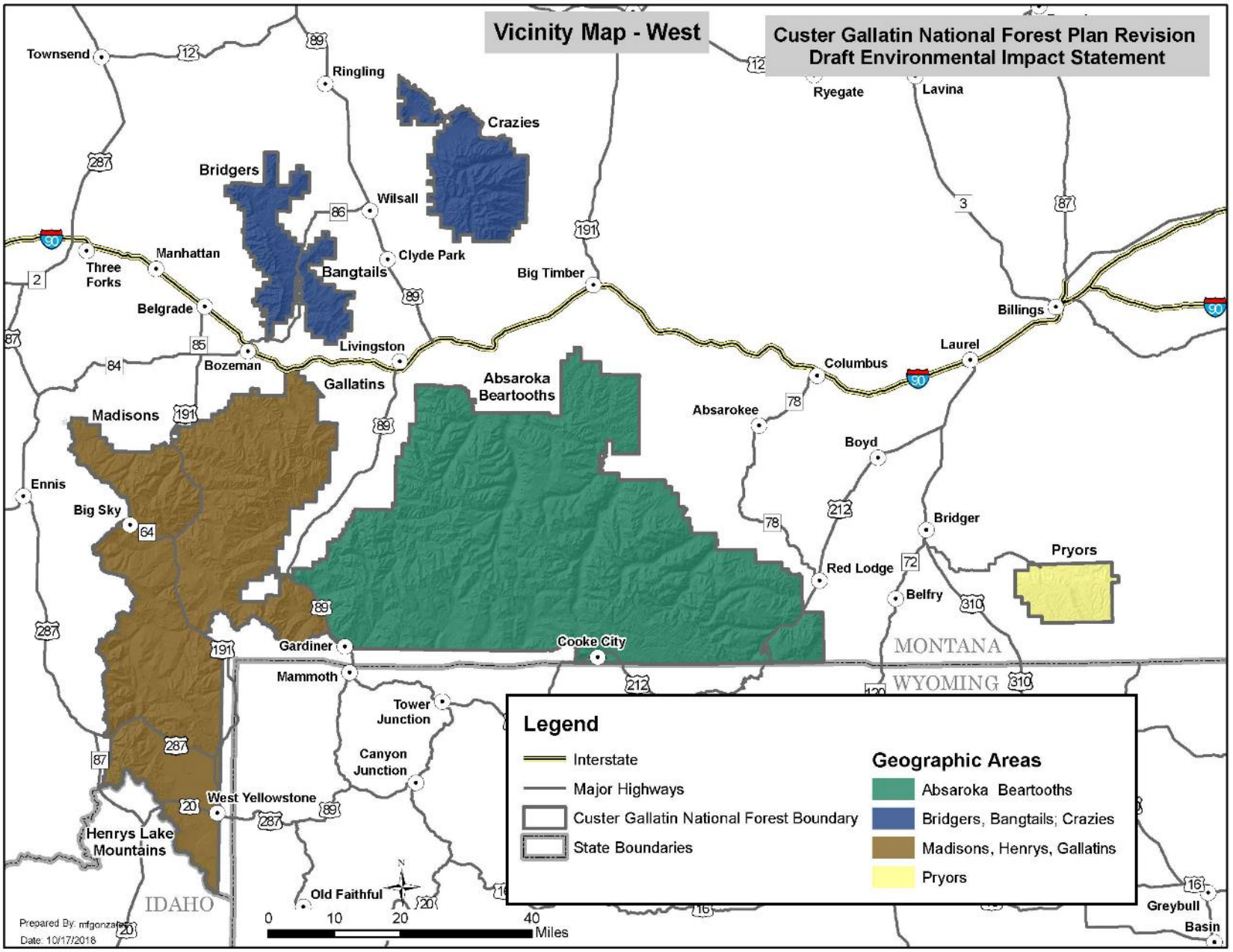
Appendix A: Maps

Note: Vicinity maps are displayed first, followed by maps for each geographic area. The vicinity maps delineate the geographic areas.

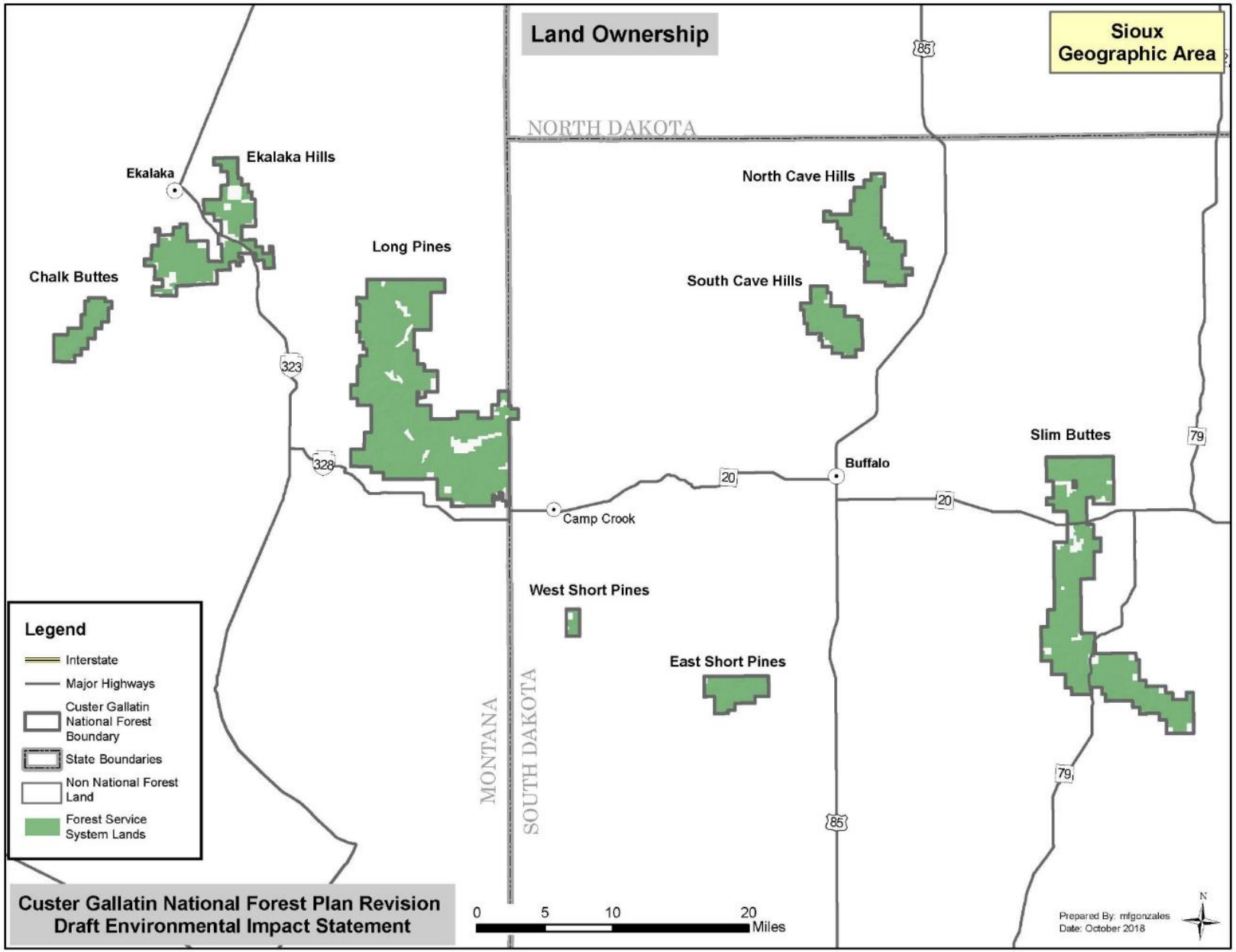
Vicinity Maps



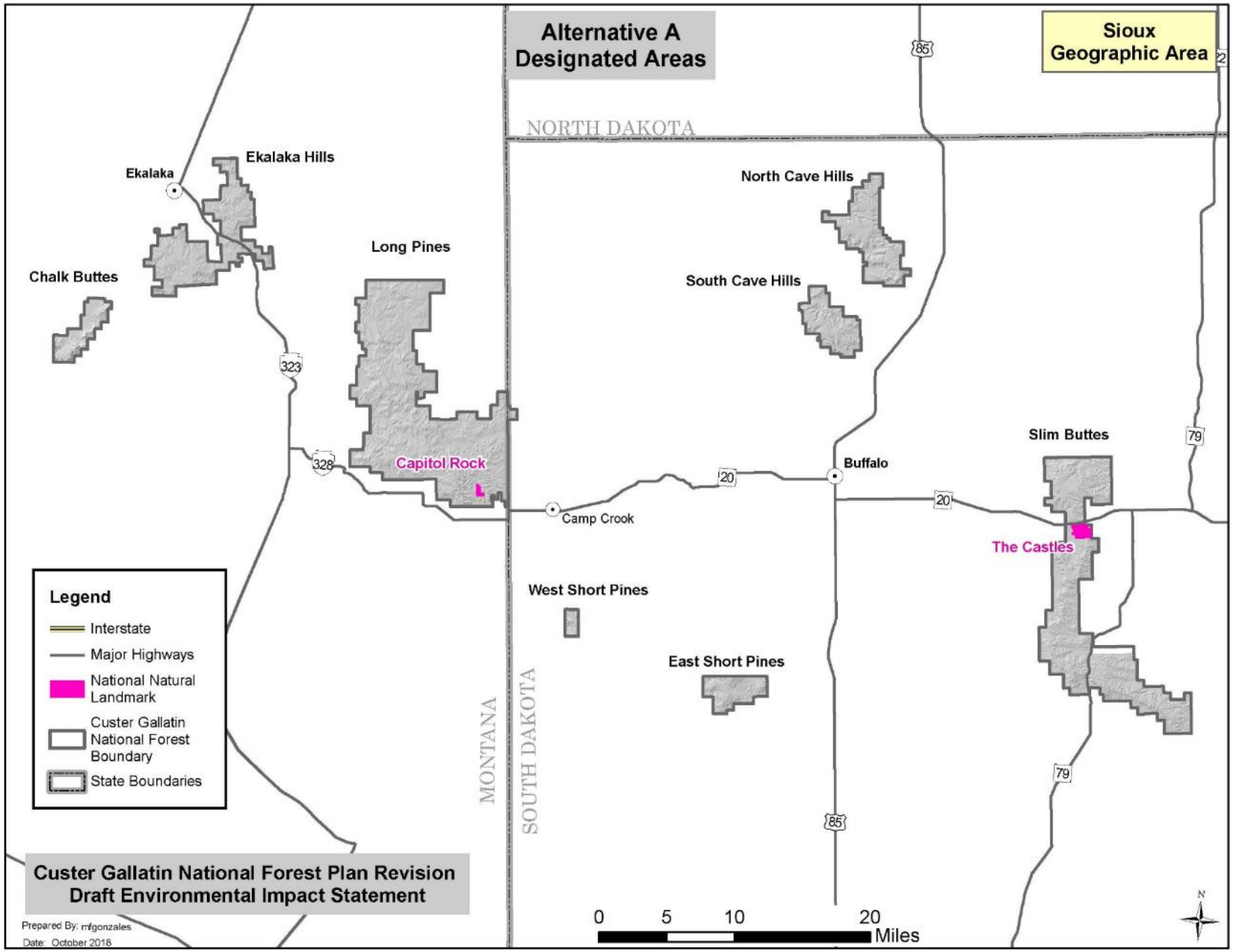

Vicinity Map - West
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
Townsend
Ringling
Crazies
Bridgers
Wilsall
Manhattan
Three Forks
Clyde Park
Bangtails
Big Timber
Belgrade
Livingston
Bozeman
Gallatins
Absaroka Beartooths
Madisons
Ennis
Big Sky
Absarokee
Columbus
Billings
Laurel
Boyd
Bridger
Pryors
Red Lodge
Belfry
Cooke City
Gardiner
Mammoth
Tower Junction
Canyon Junction
West Yellowstone
Henrys Lake Mountains
Old Faithful
Ryegate
Lavina
Greybull Basin
MONTANA
WYOMING
IDAHO
Legend
Interstate
Major Highways
Custer Gallatin National Forest Boundary
State Boundaries
Geographic Areas
Absaroka Beartooths
Bridgers, Bangtails, Crazies
Madisons, Henrys, Gallatins
Pryors
0 10 20 40
Miles
Prepared By: mfgonzales
Date: 10/17/2018

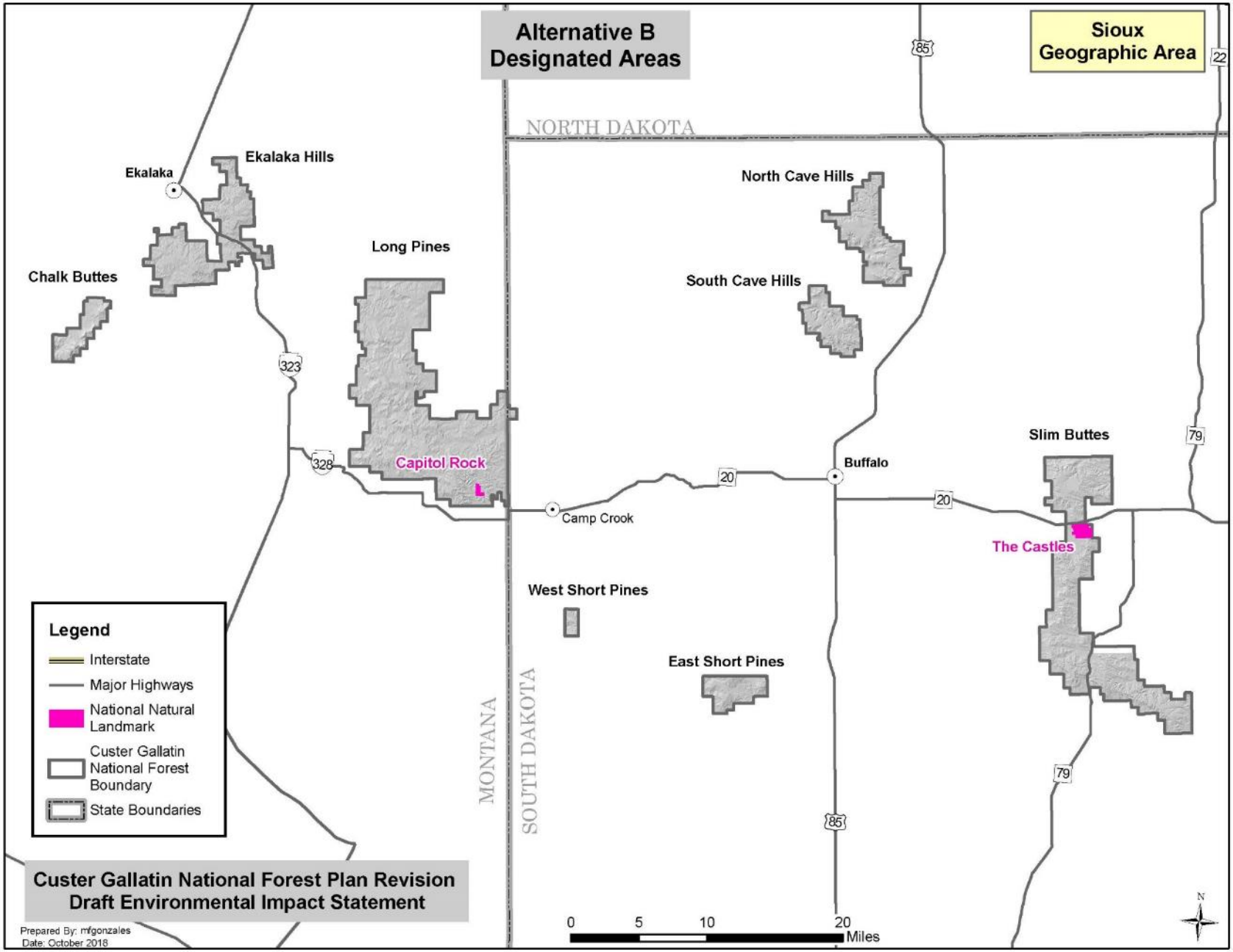
Geographic Area Maps – Sioux Geographic Area

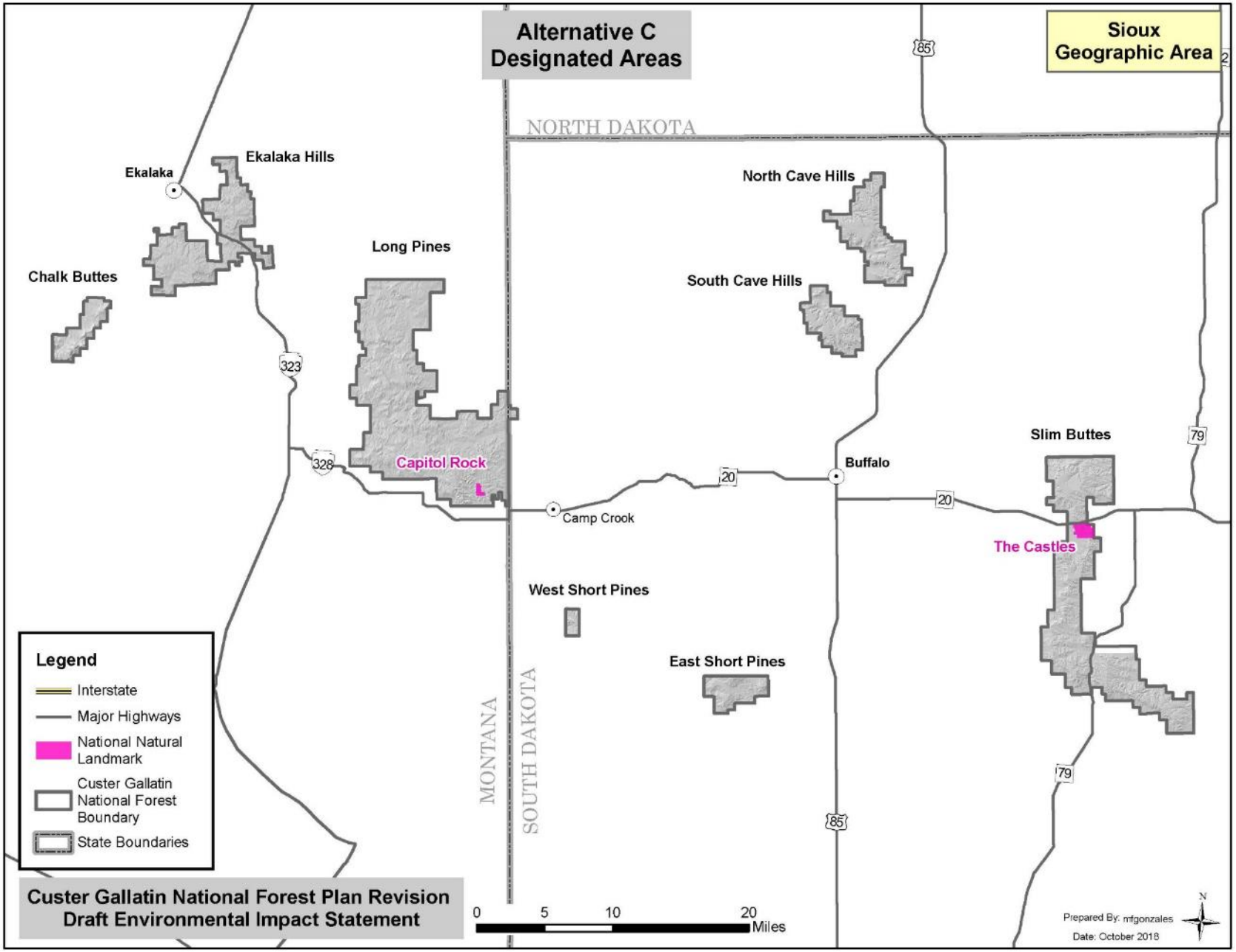
Land Ownership



Designated Areas




Alternative B
Designated Areas
Sioux
Geographic Area
NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Long Pines
North Cave Hills
South Cave Hills
Capitol Rock
Camp Crook
Buffalo
Slim Buttes
The Castles
West Short Pines
East Short Pines
MONTANA
SOUTH DAKOTA
323
328
20
85
79
22
Legend
Interstate
Major Highways
National Natural Landmark
Custer Gallatin National Forest Boundary
State Boundaries
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
Prepared By: mfgonzales
Date: October 2018
0 5 10 20
Miles
N


Alternative C
Designated Areas
Sioux
Geographic Area
NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Long Pines
North Cave Hills
South Cave Hills
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Prepared By: mfgonzales
Date: October 2018
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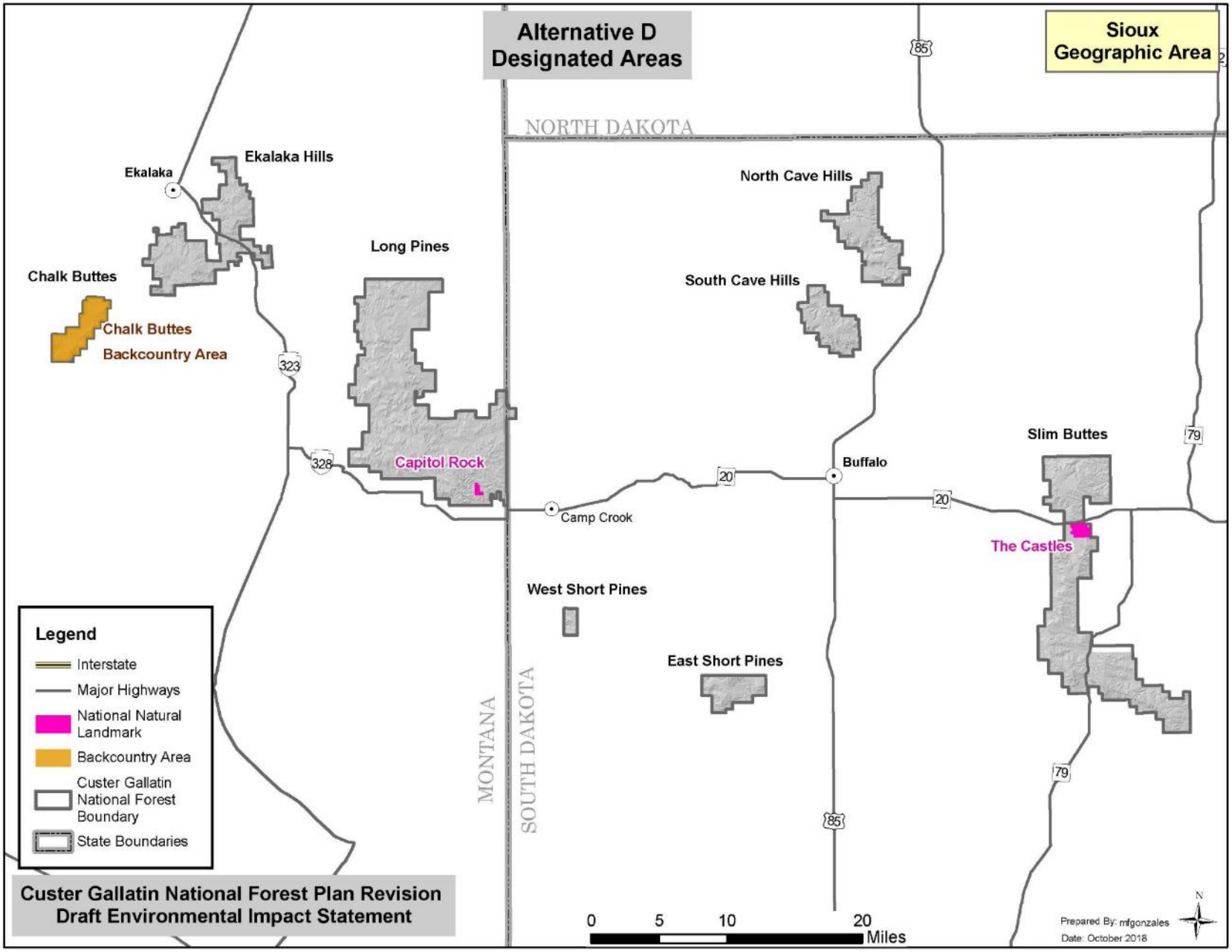
Alternative D
Designated Areas
Sioux
Geographic Area
NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Chalk Buttes
Backcountry Area
Long Pines
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North Cave Hills
South Cave Hills
Slim Buttes
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Camp Crook
The Castles
West Short Pines
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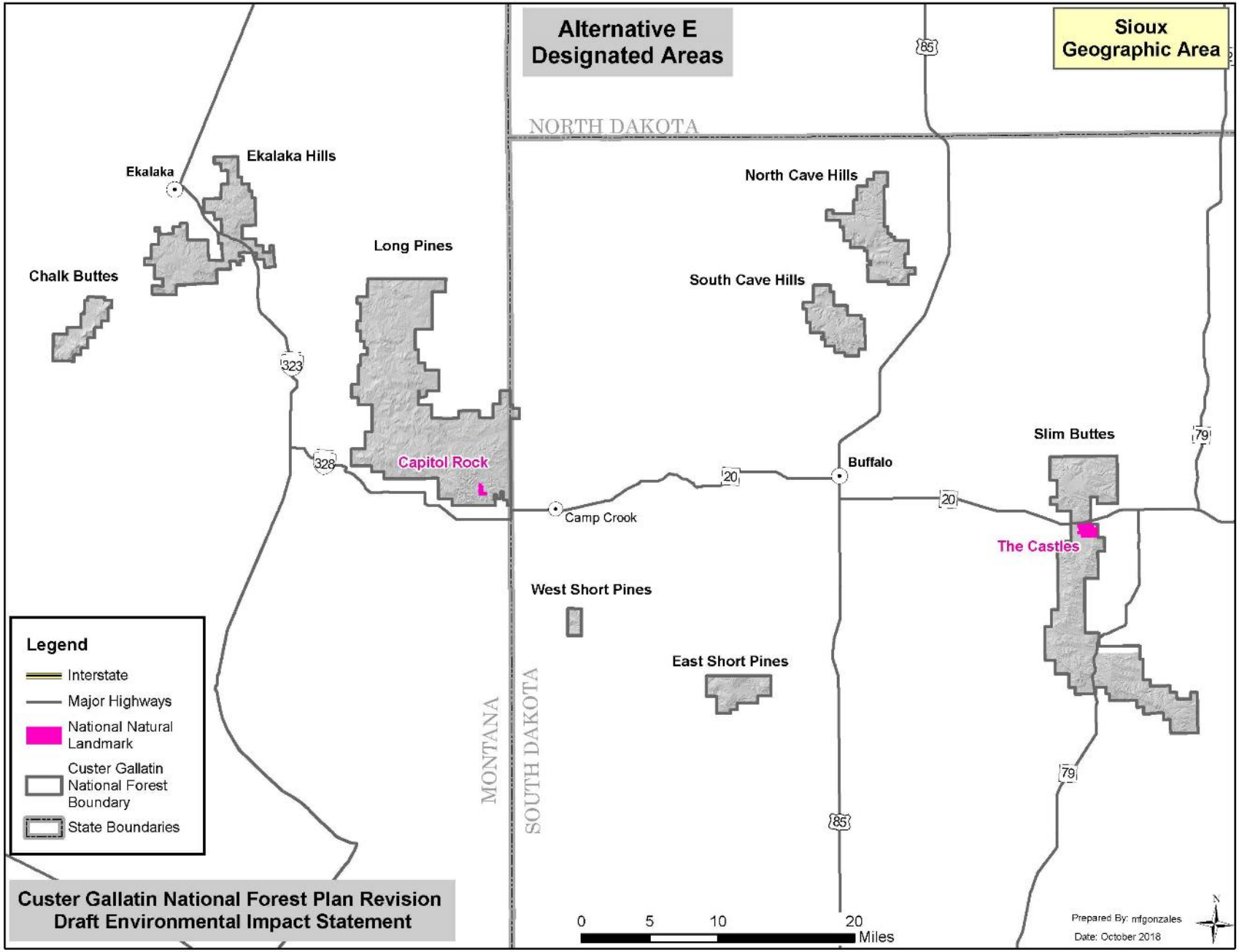
Alternative E
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NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Long Pines
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South Cave Hills
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State Boundaries
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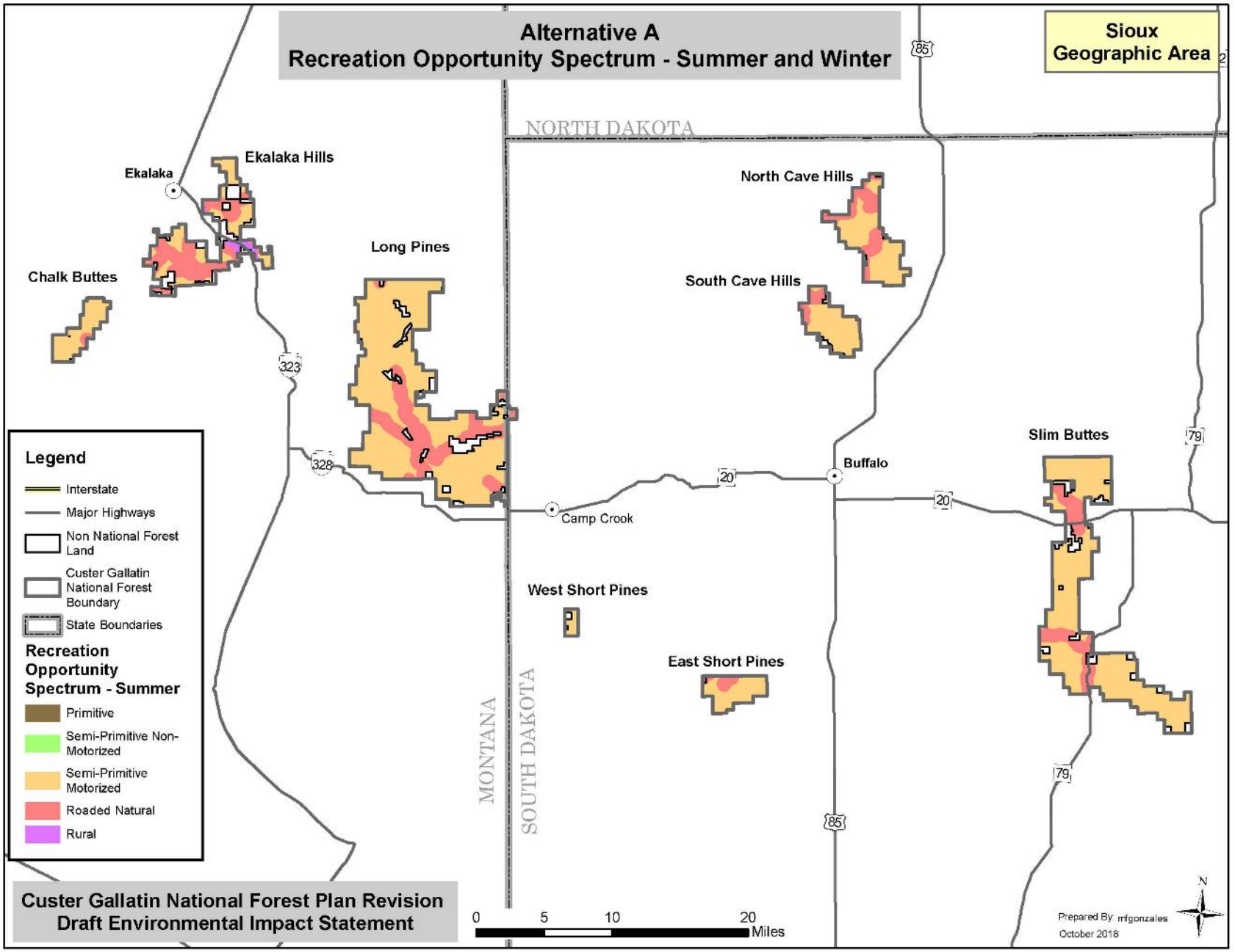
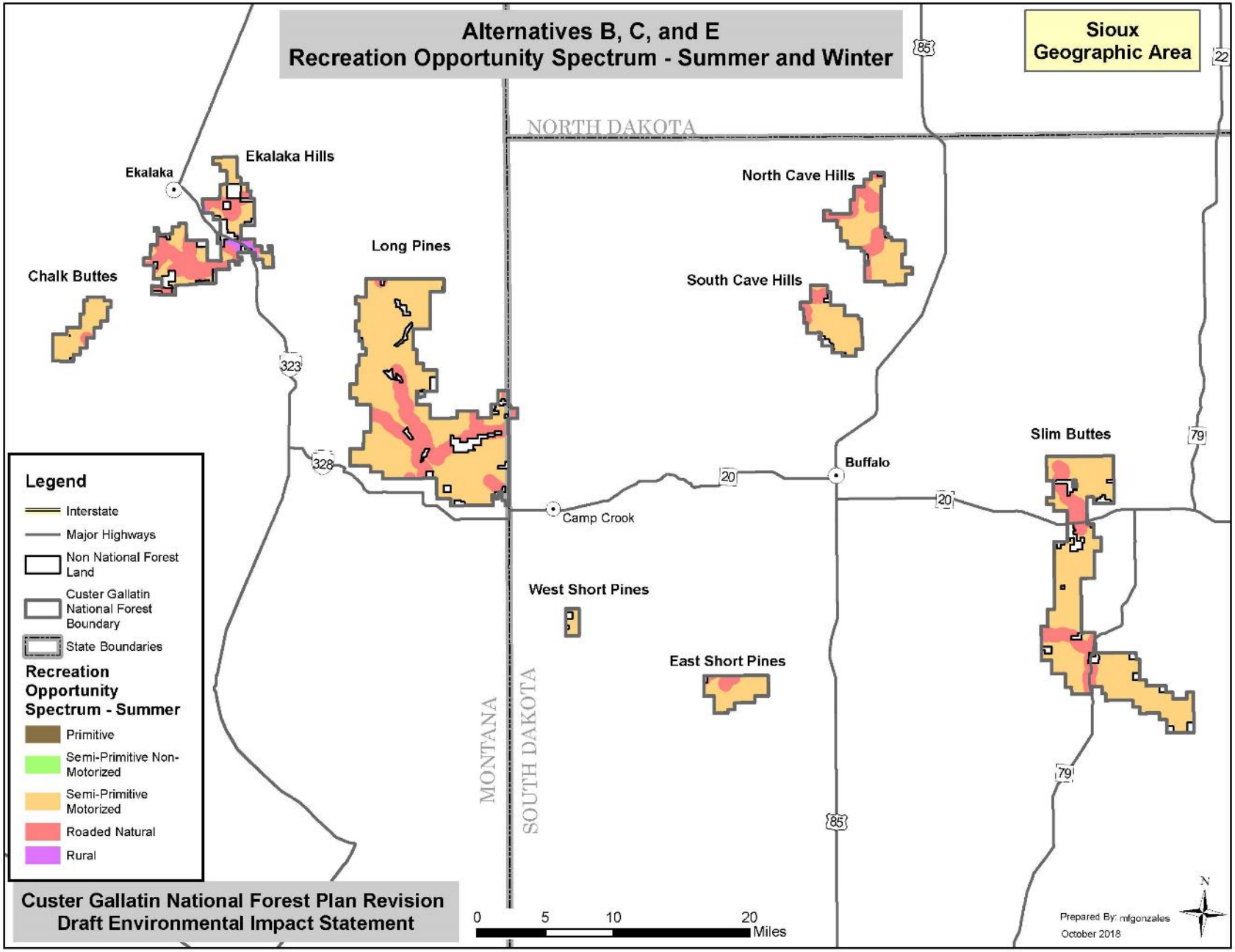
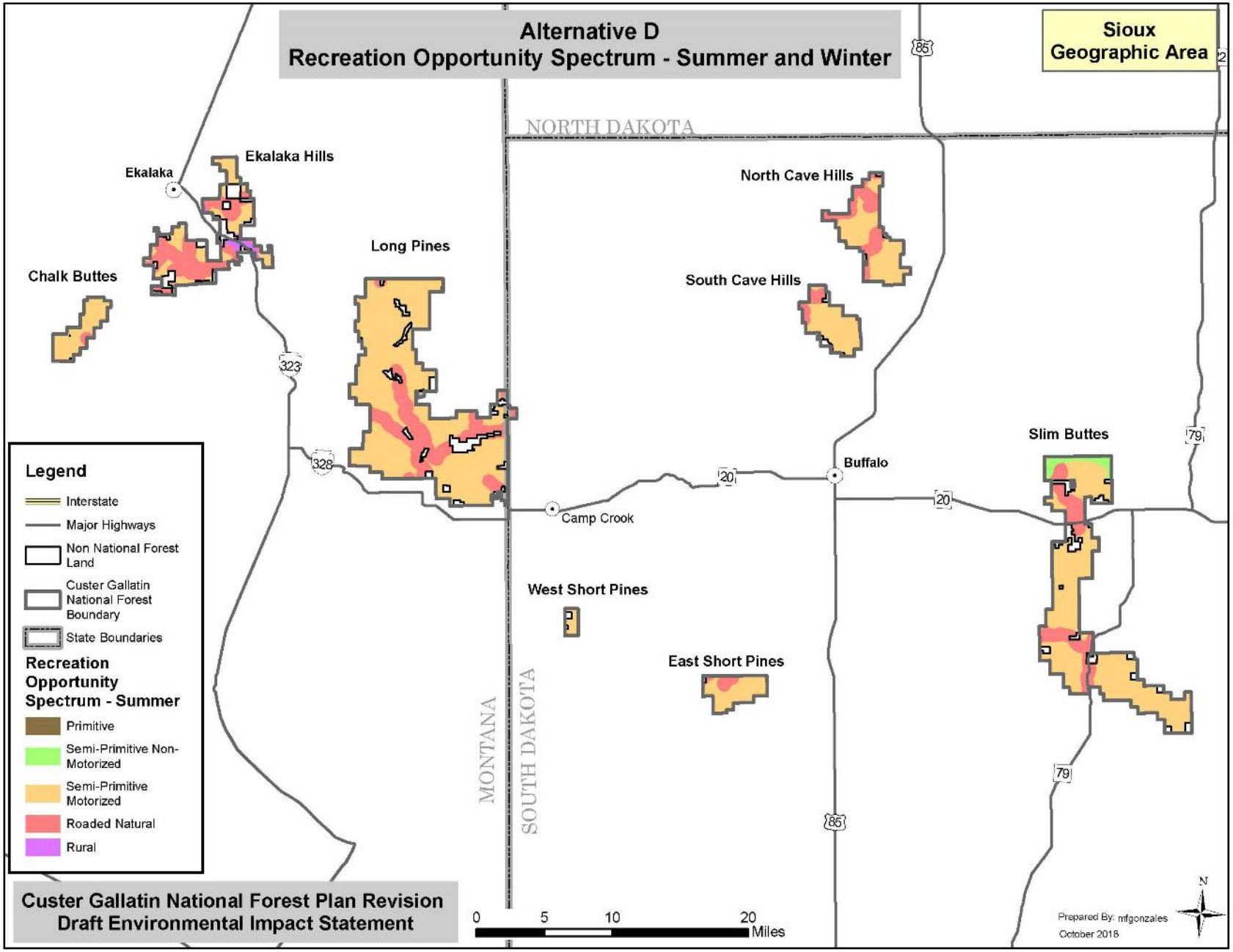
Miles
Prepared By: mfgonzales
Date: October 2018
N

Recreation Opportunity Spectrum – Summer and Winter




Alternatives B, C, and E
Recreation Opportunity Spectrum - Summer and Winter
Sioux Geographic Area
NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Long Pines
North Cave Hills
South Cave Hills
Slim Buttes
Buffalo
Camp Crook
West Short Pines
East Short Pines
MONTANA
SOUTH DAKOTA
85
22
323
328
20
79
Legend
Interstate
Major Highways
Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
0 5 10 20
Miles
Prepared By: mlgonzales
October 2018
N


Alternative D
Recreation Opportunity Spectrum - Summer and Winter
Sioux Geographic Area
NORTH DAKOTA
Ekalaka
Ekalaka Hills
Chalk Buttes
Long Pines
North Cave Hills
South Cave Hills
Slim Buttes
Buffalo
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West Short Pines
East Short Pines
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Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Custer Gallatin National Forest Plan Revision
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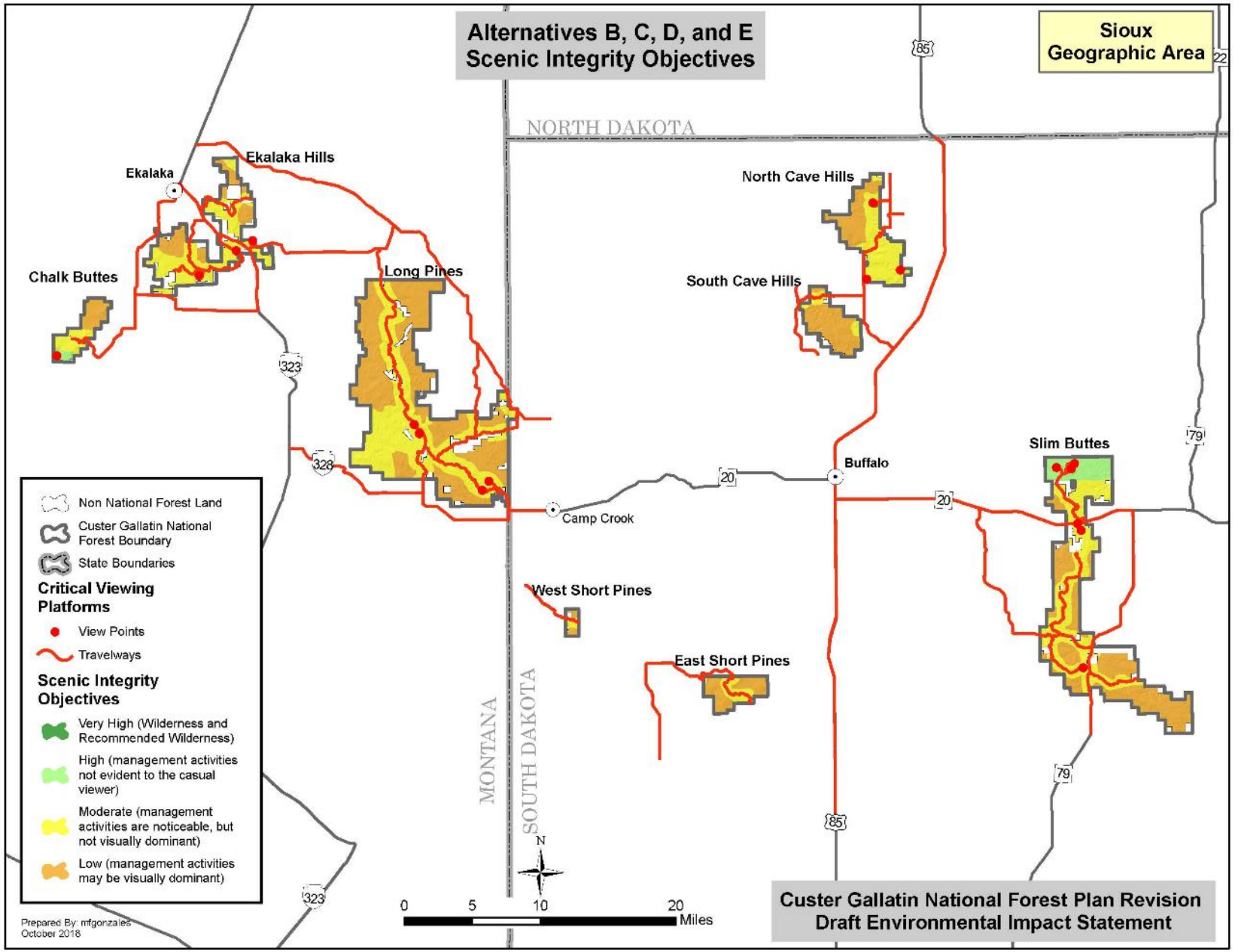
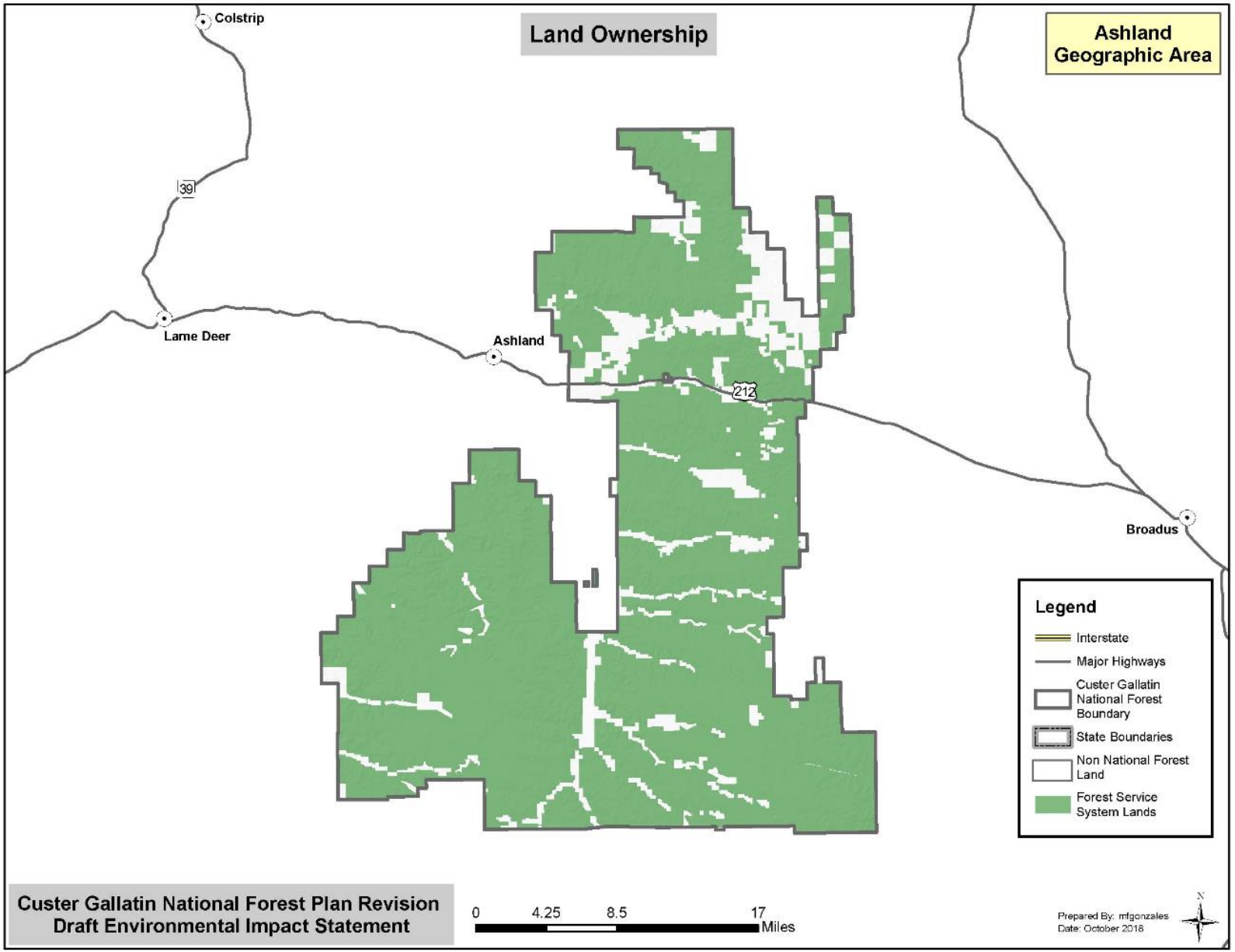
0 5 10 20
Miles
Prepared By: mfgonzales
October 2018
N

Scenic Integrity Objectives

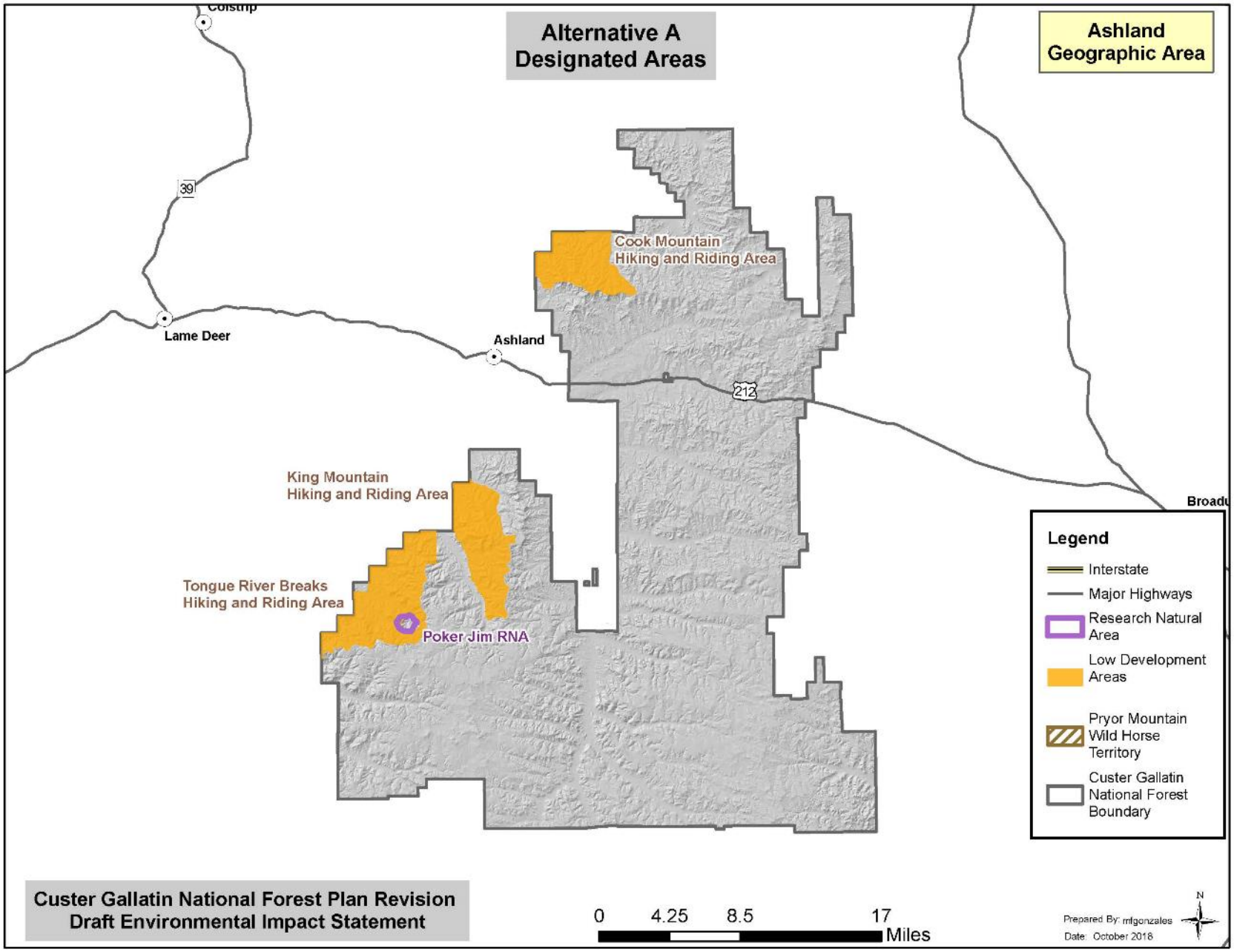


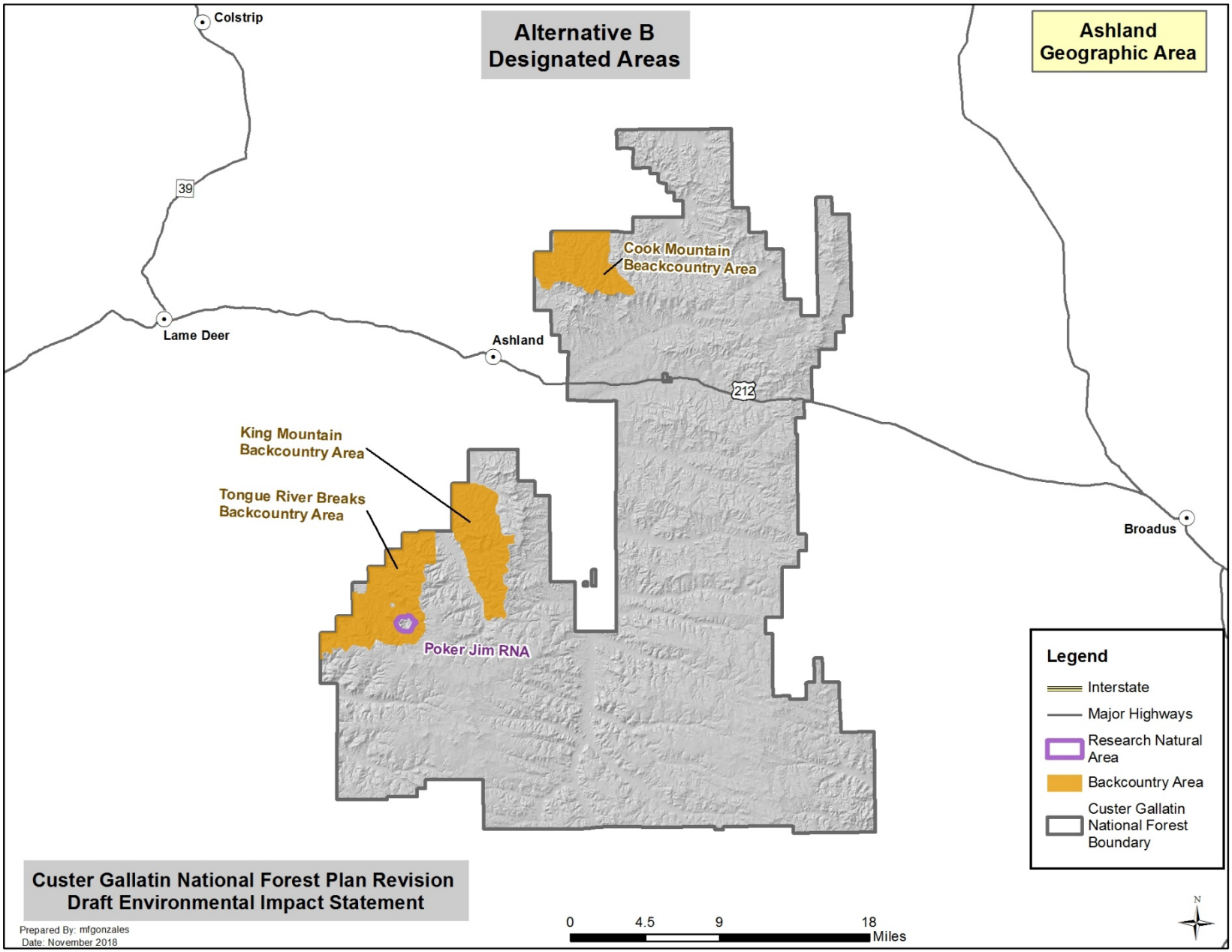
Geographic Area Maps – Ashland Geographic Area

Land Ownership



Designated Areas




Alternative B
Designated Areas
Ashland
Geographic Area
Colstrip
39
Lame Deer
Ashland
212
Broadus
Cook Mountain
Beackcountry Area
King Mountain
Backcountry Area
Tongue River Breaks
Backcountry Area
Poker Jim RNA
Legend
Interstate
Major Highways
Research Natural Area
Backcountry Area
Custer Gallatin National Forest Boundary
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
Prepared By: mfgonzales
Date: November 2018
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18
Miles
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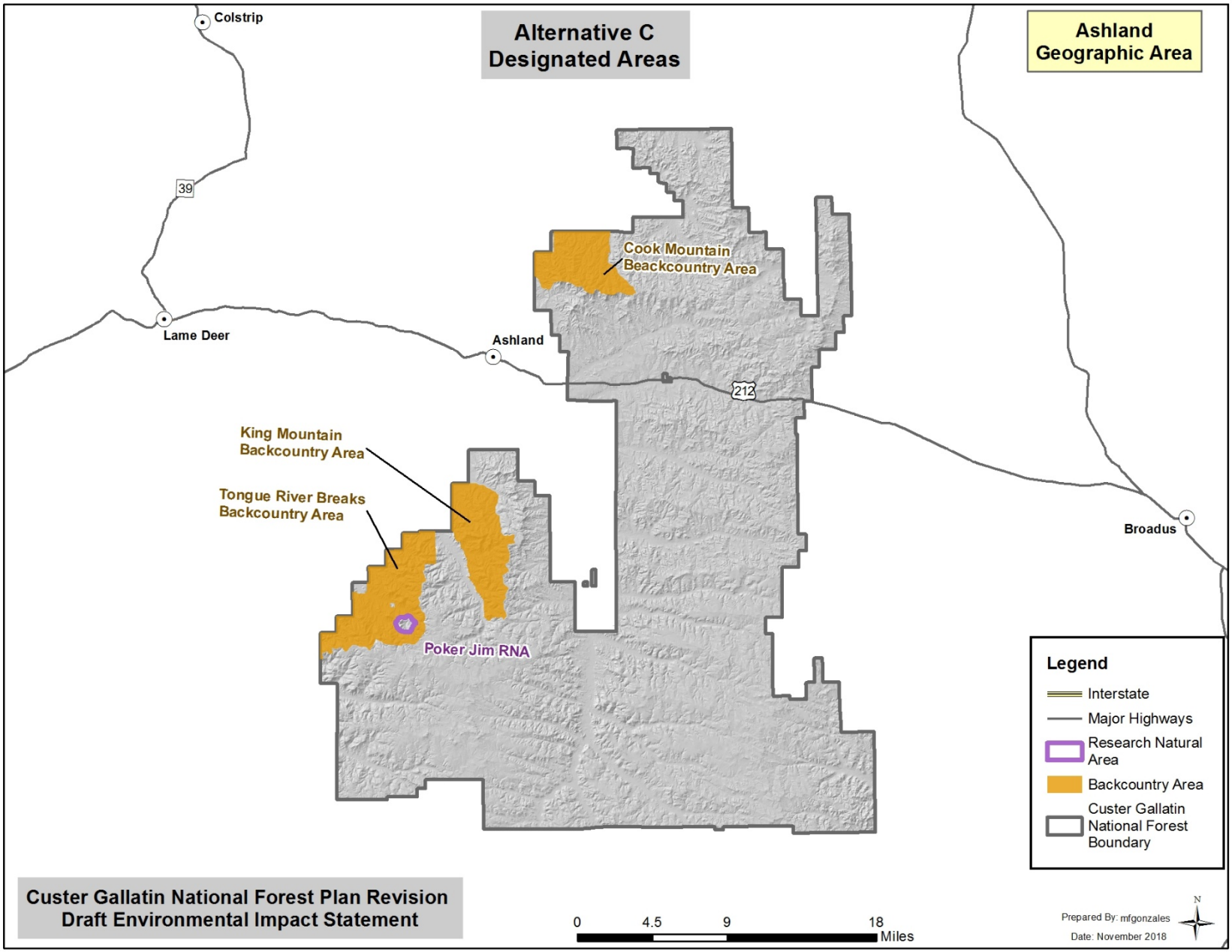
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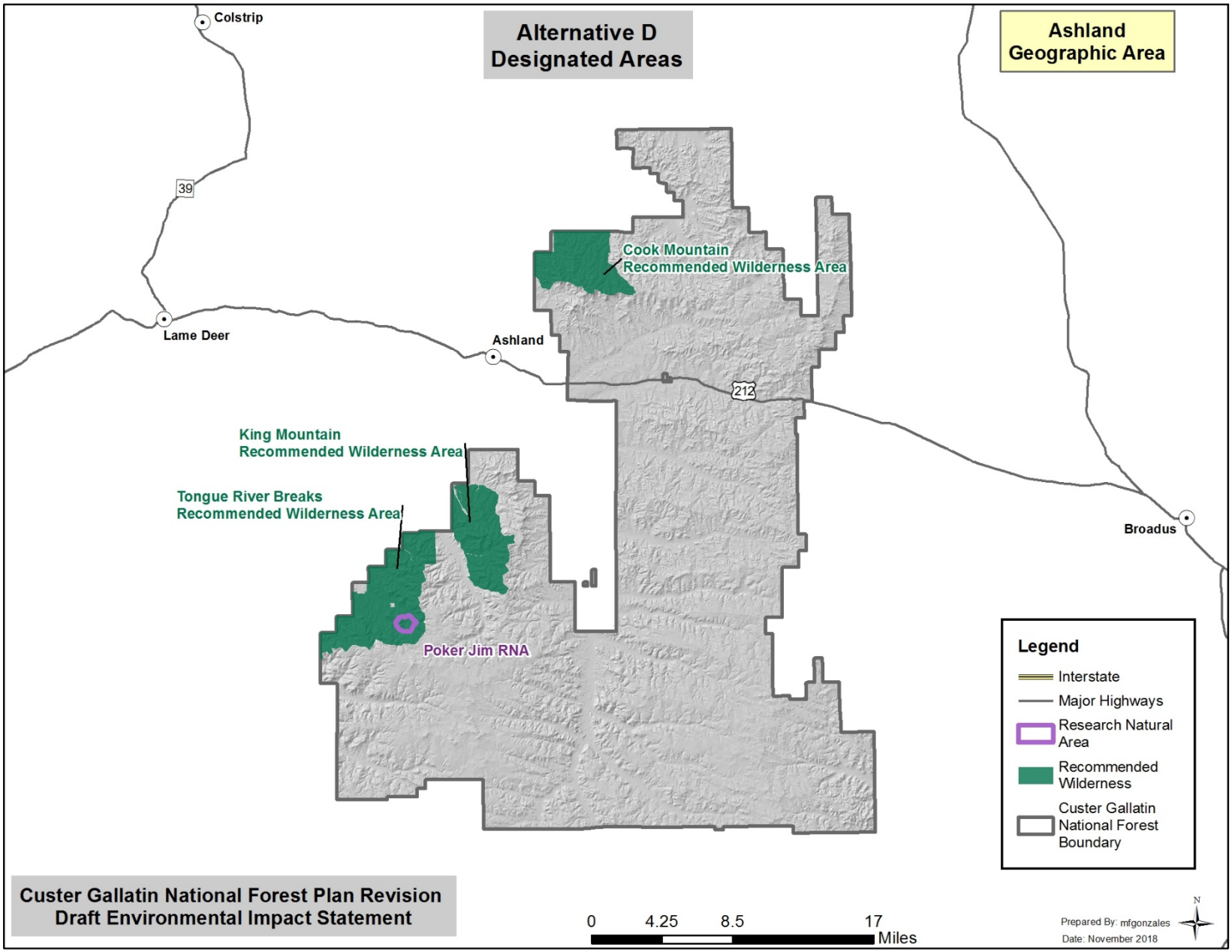
Alternative D
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Ashland
Geographic Area
Colstrip
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Lame Deer
Ashland
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Broadus
Cook Mountain
Recommended Wilderness Area
King Mountain
Recommended Wilderness Area
Tongue River Breaks
Recommended Wilderness Area
Poker Jim RNA
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Interstate
Major Highways
Research Natural Area
Recommended Wilderness
Custer Gallatin National Forest Boundary
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Draft Environmental Impact Statement
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Miles
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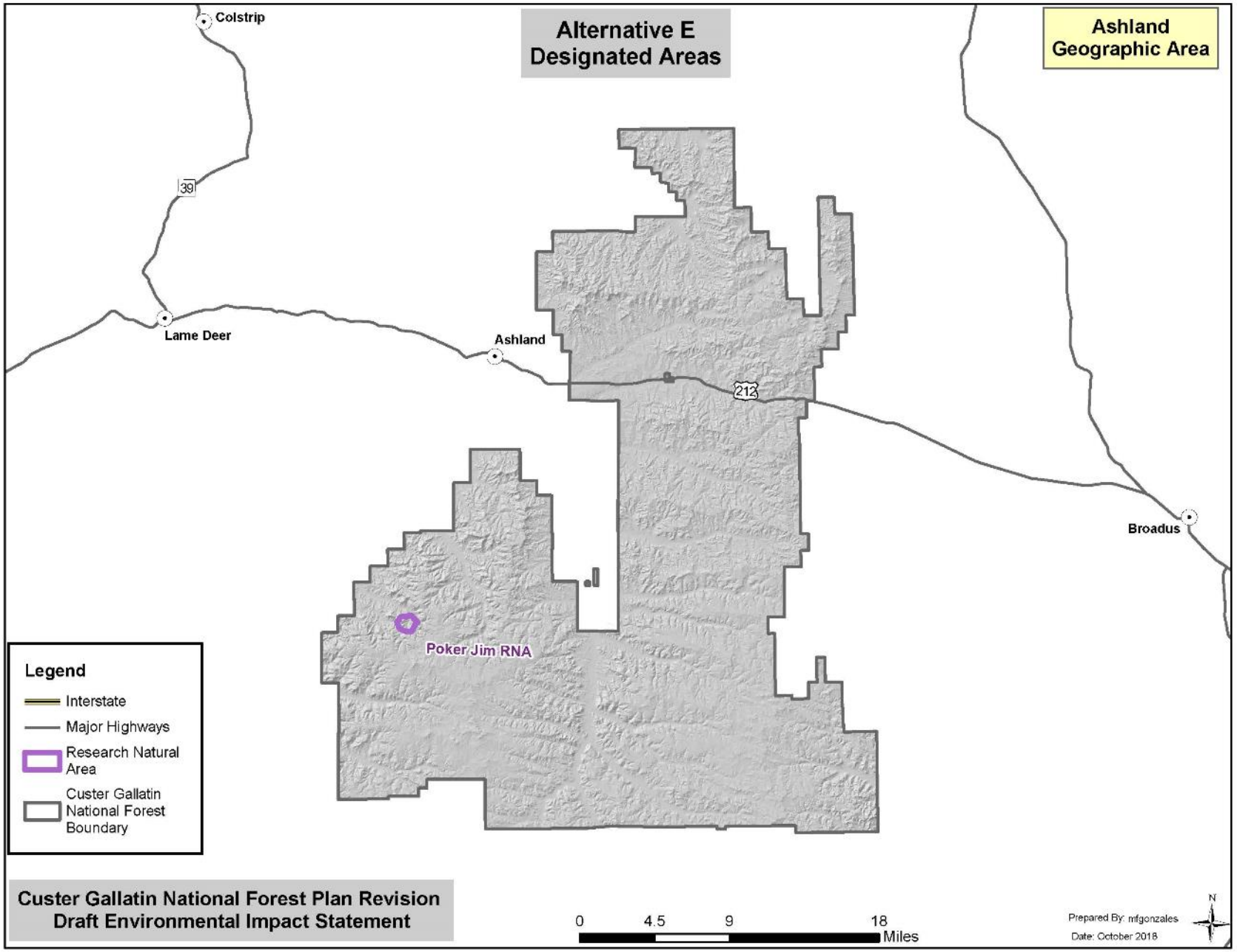
Prepared By: mfgonzales
Date: November 2018


Alternative E
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Colstrip
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Lame Deer
Ashland
212
Broadus
Poker Jim RNA
Legend
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Major Highways
Research Natural Area
Custer Gallatin National Forest Boundary
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
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Miles
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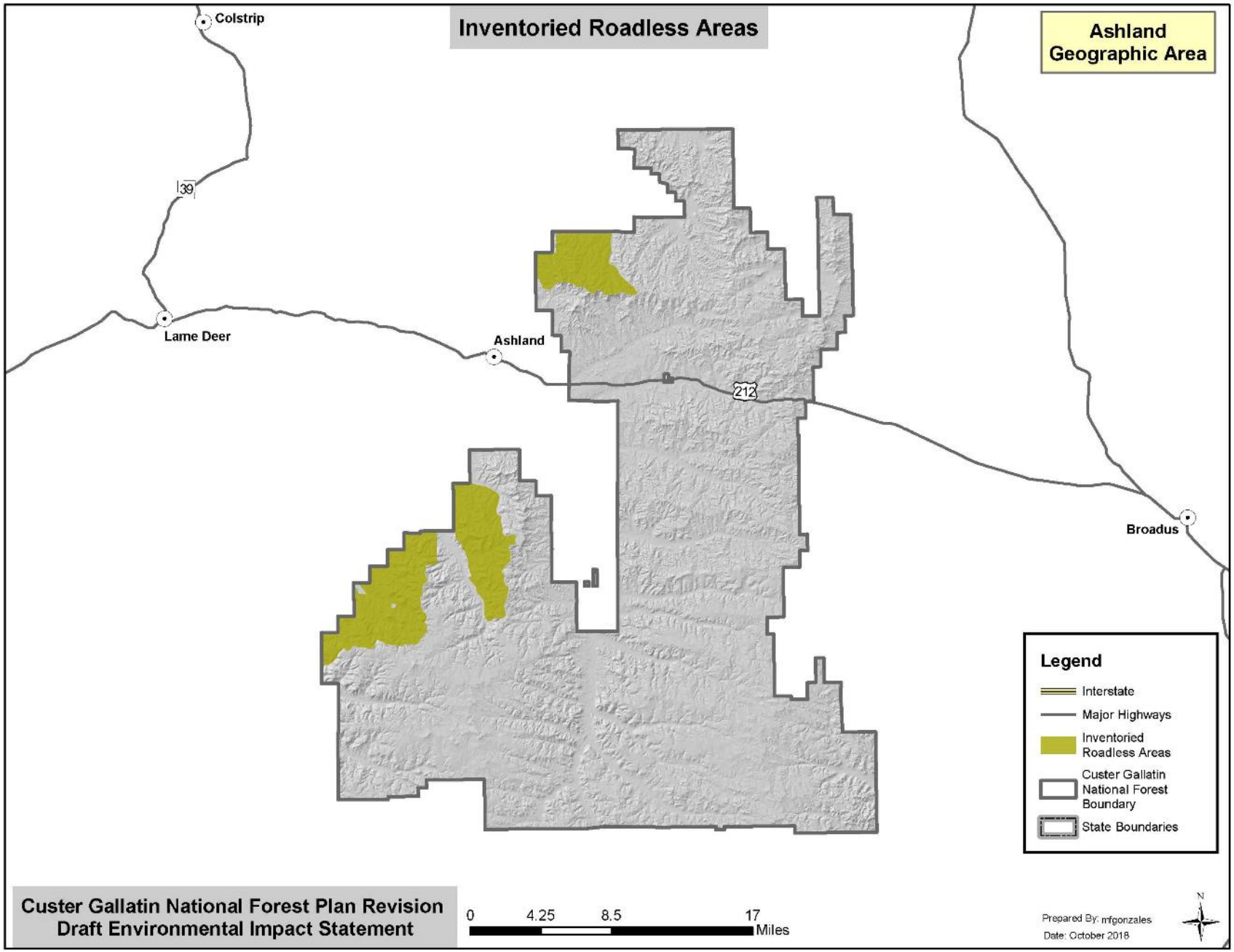
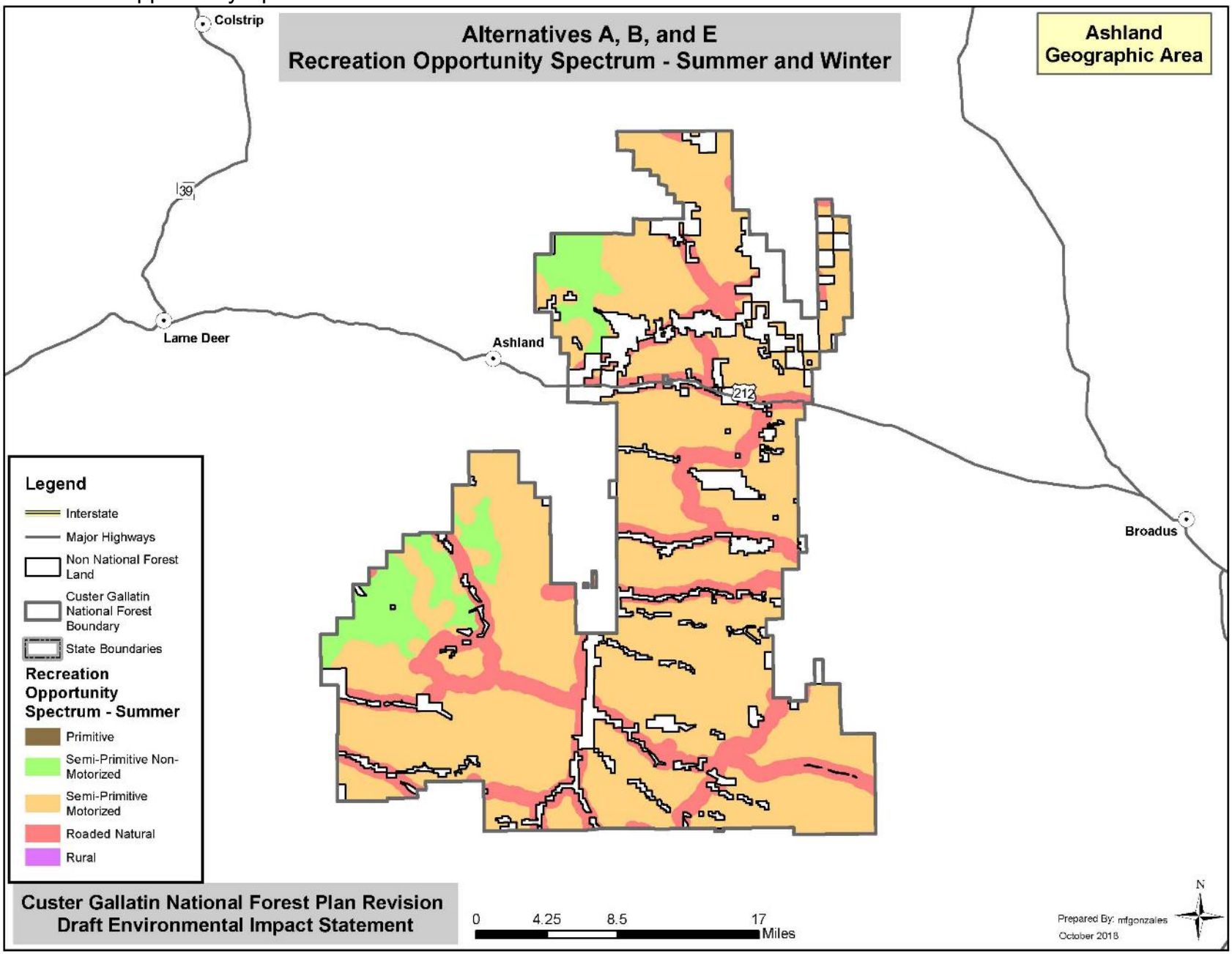
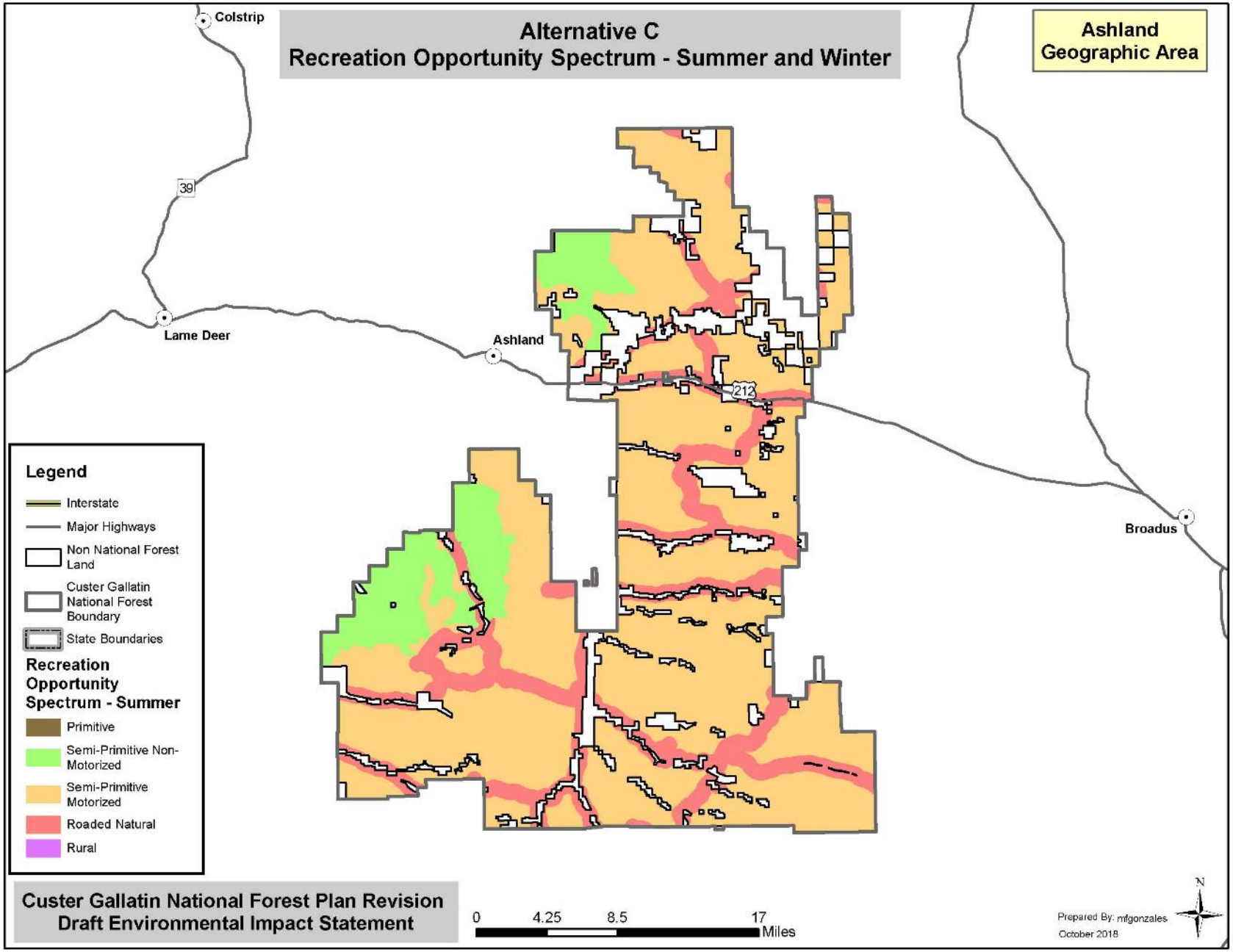
Prepared By: mfgonzales
Date: October 2018

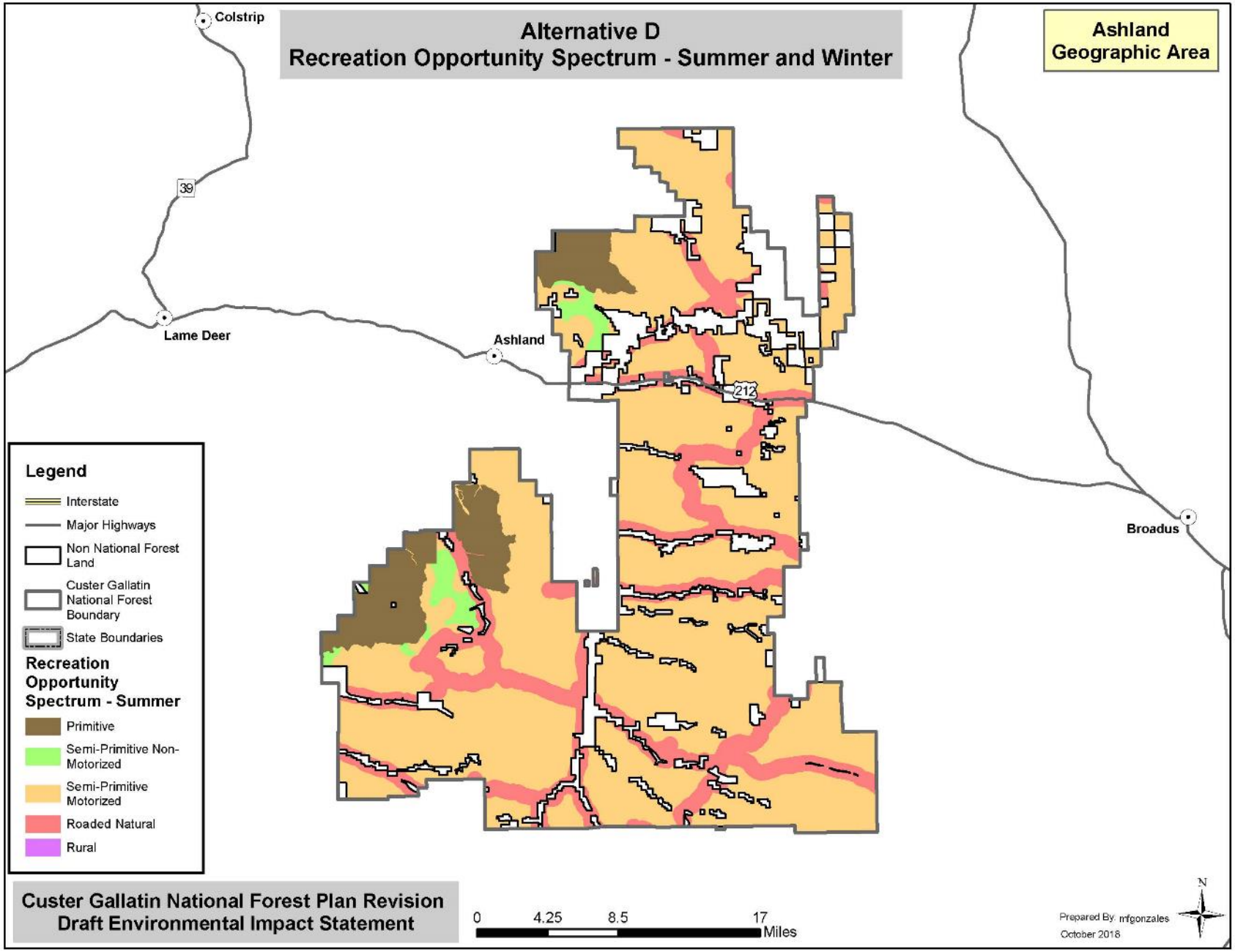
Inventoried Roadless Areas



Recreation Opportunity Spectrum – Summer and Winter




Alternative C
Recreation Opportunity Spectrum - Summer and Winter
Ashland
Geographic Area
Colstrip
39
Lame Deer
Ashland
212
Broadus
Legend
Interstate
Major Highways
Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
0
4.25
8.5
17
Miles
N
Prepared By: mfgonzales
October 2018


Alternative D
Recreation Opportunity Spectrum - Summer and Winter
Ashland Geographic Area
Colstrip
39
Lame Deer
Ashland
212
Broadus
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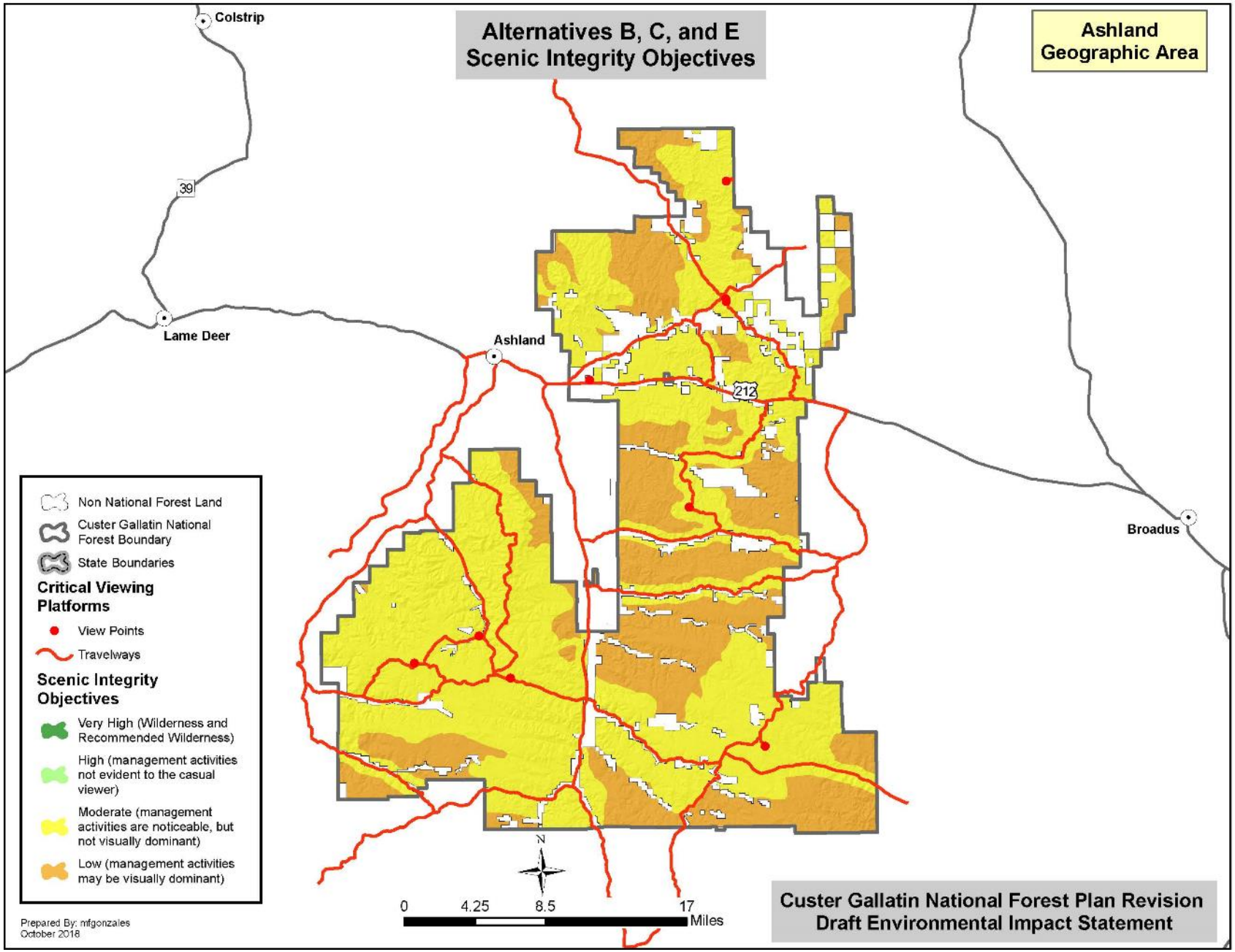
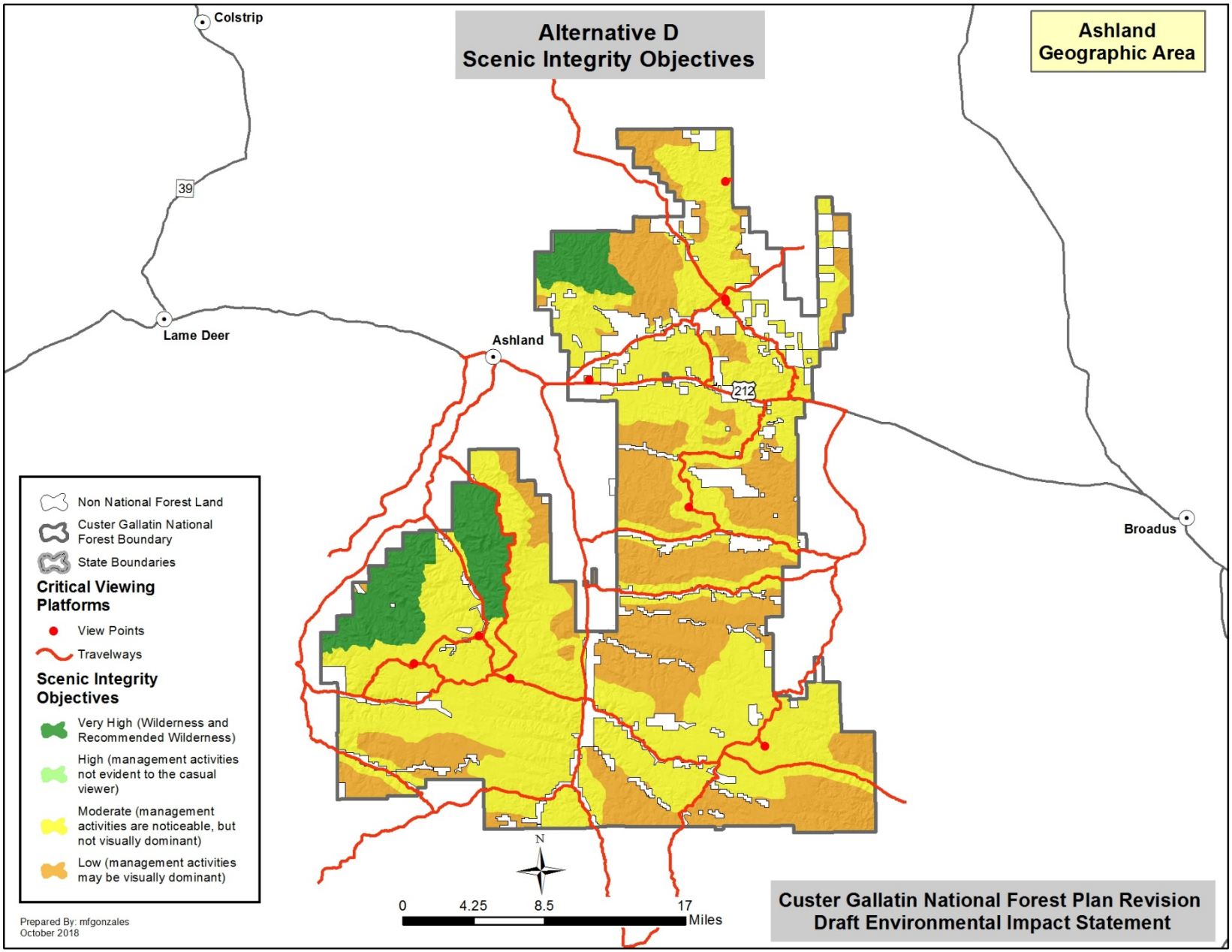
Custer Gallatin National Forest Boundary
State Boundaries
Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
0 4.25 8.5 17
Miles
N
Prepared By: mfgonzales
October 2018

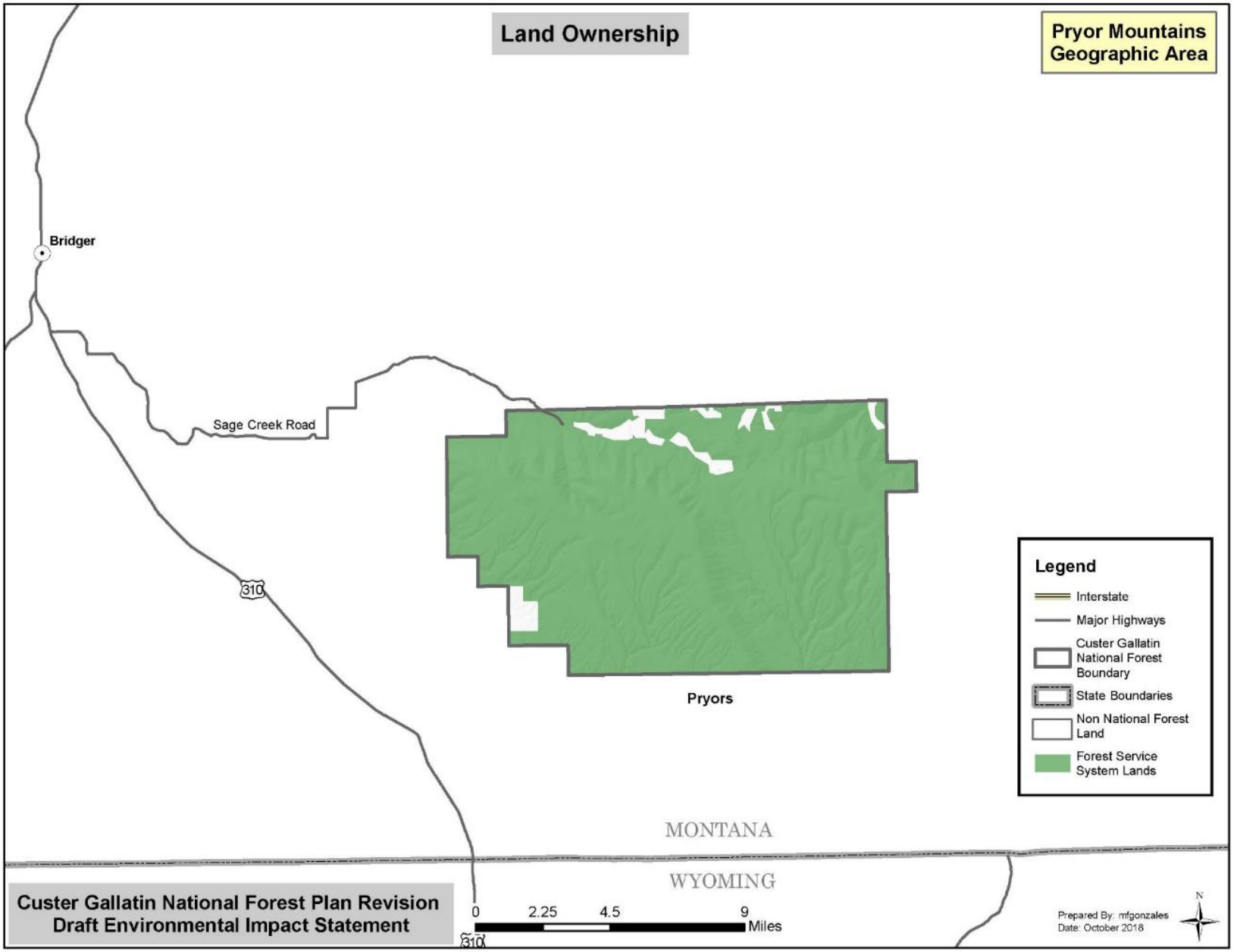
Scenic Integrity Objectives



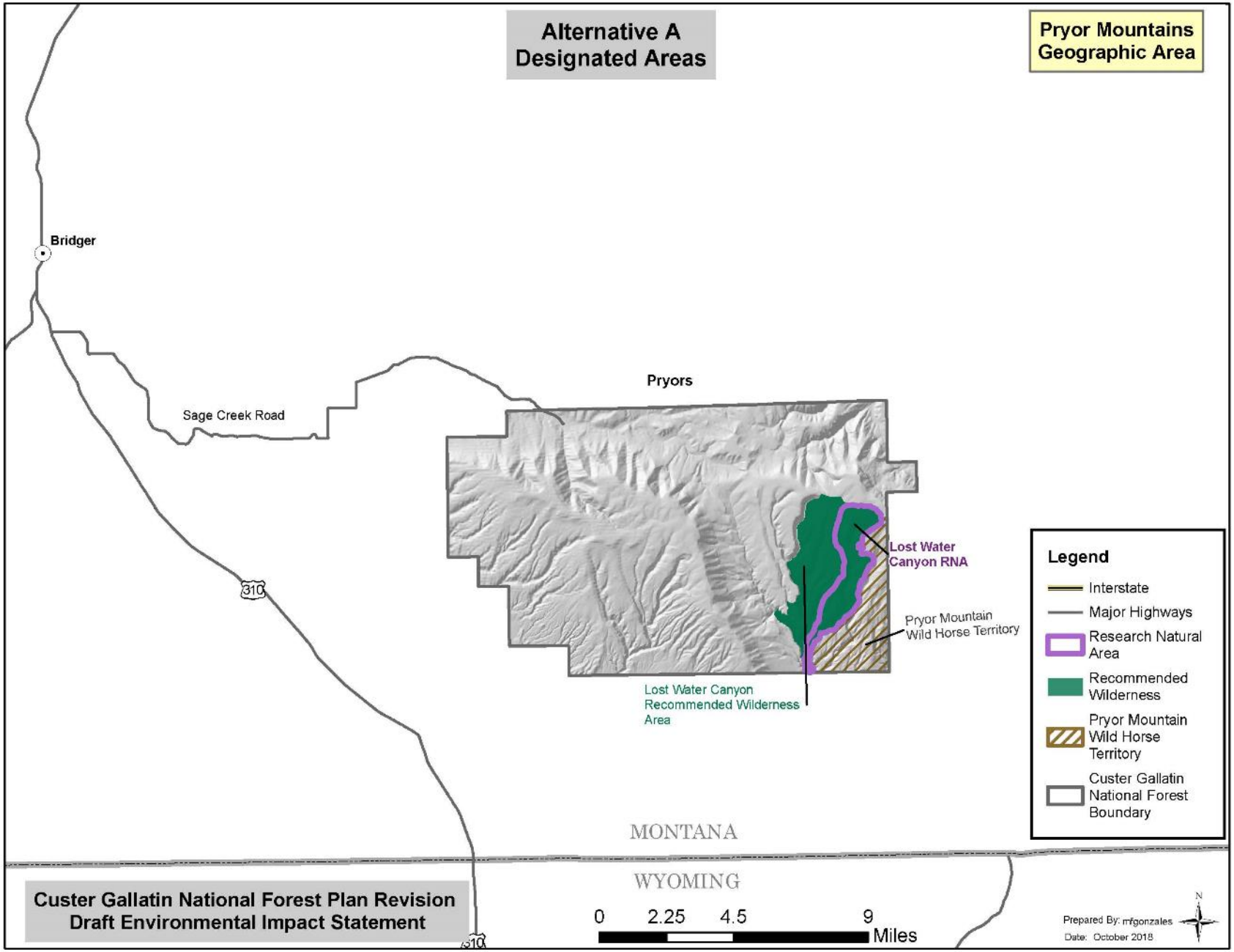

Alternative D
Scenic Integrity Objectives
Ashland
Geographic Area
Colstrip
39
Lame Deer
Ashland
212
Broadus
Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Critical Viewing Platforms
View Points
Travelways
Scenic Integrity Objectives
Very High (Wilderness and Recommended Wilderness)
High (management activities not evident to the casual viewer)
Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
N
0
4.25
8.5
17
Miles
Prepared By: mfgonzales
October 2018
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement

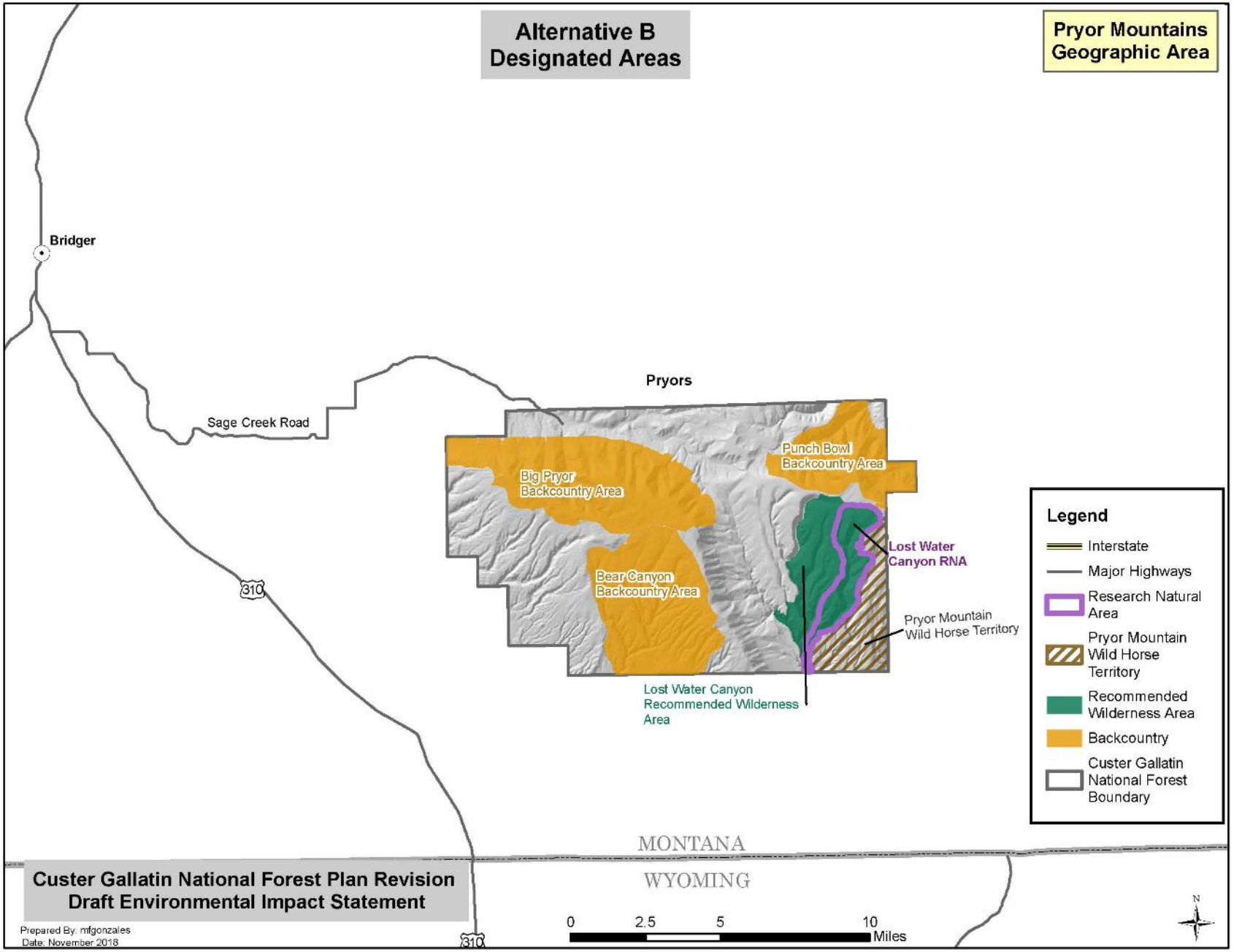
Geographic Area Maps – Pryor Mountains Geographic Area

Land Ownership



Designated Areas




Alternative B
Designated Areas
Pryor Mountains
Geographic Area
Bridger
Pryors
Sage Creek Road
Punch Bowl
Backcountry Area
Big Pryor
Backcountry Area
Lost Water
Canyon RNA
Bear Canyon
Backcountry Area
Pryor Mountain
Wild Horse Territory
Lost Water Canyon
Recommended Wilderness
Area
310
Legend
Interstate
Major Highways
Research Natural
Area
Pryor Mountain
Wild Horse
Territory
Recommended
Wilderness Area
Backcountry
Custer Gallatin
National Forest
Boundary
MONTANA
WYOMING
Custer Gallatin National Forest Plan Revision
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Date: November 2018
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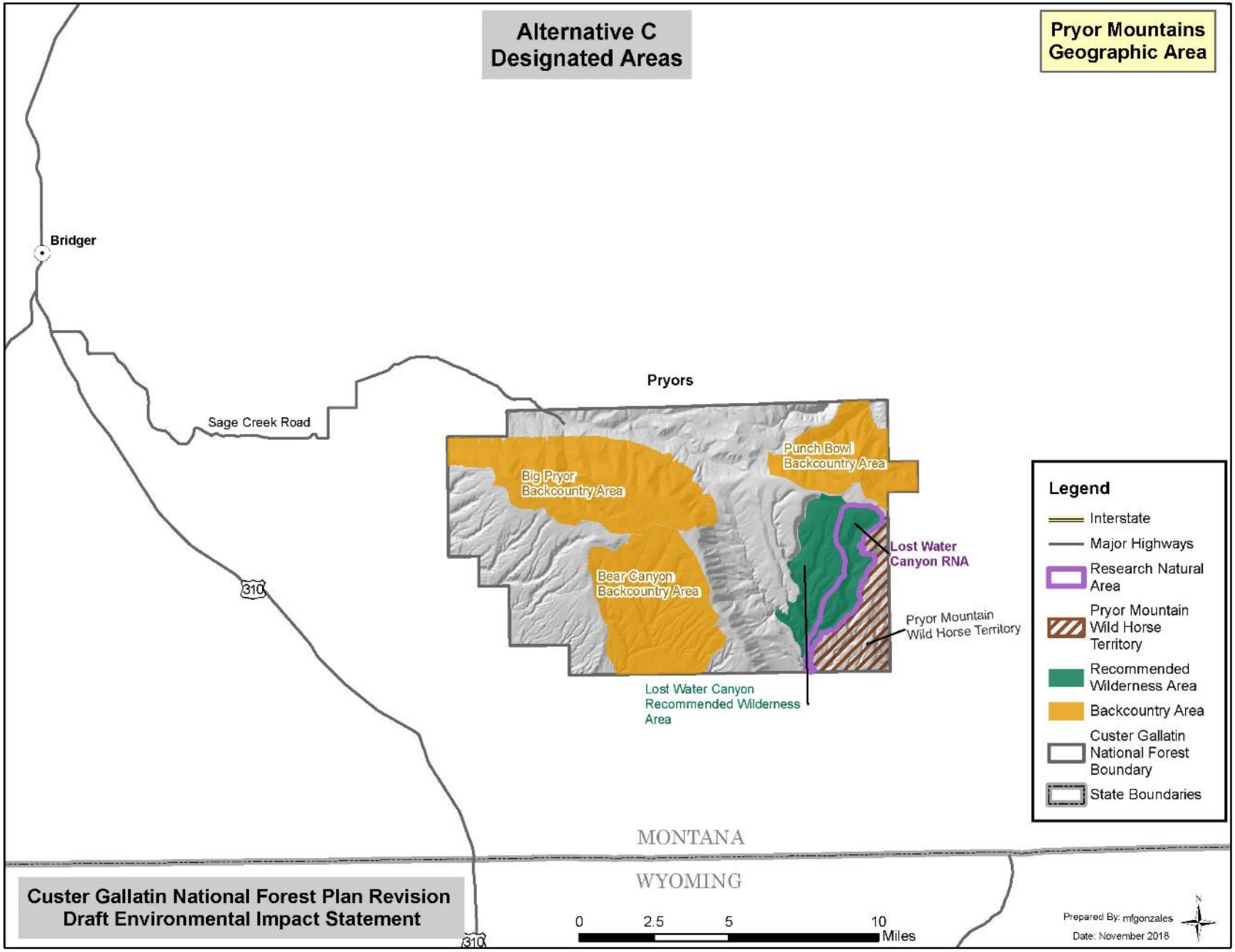
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Pryors
Sage Creek Road
Punch Bowl
Backcountry Area
Big Pryor
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Lost Water
Canyon RNA
Bear Canyon
Backcountry Area
Pryor Mountain
Wild Horse Territory
Lost Water Canyon
Recommended Wilderness
Area
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Legend
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Major Highways
Research Natural
Area
Pryor Mountain
Wild Horse
Territory
Recommended
Wilderness Area
Backcountry Area
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National Forest
Boundary
State Boundaries
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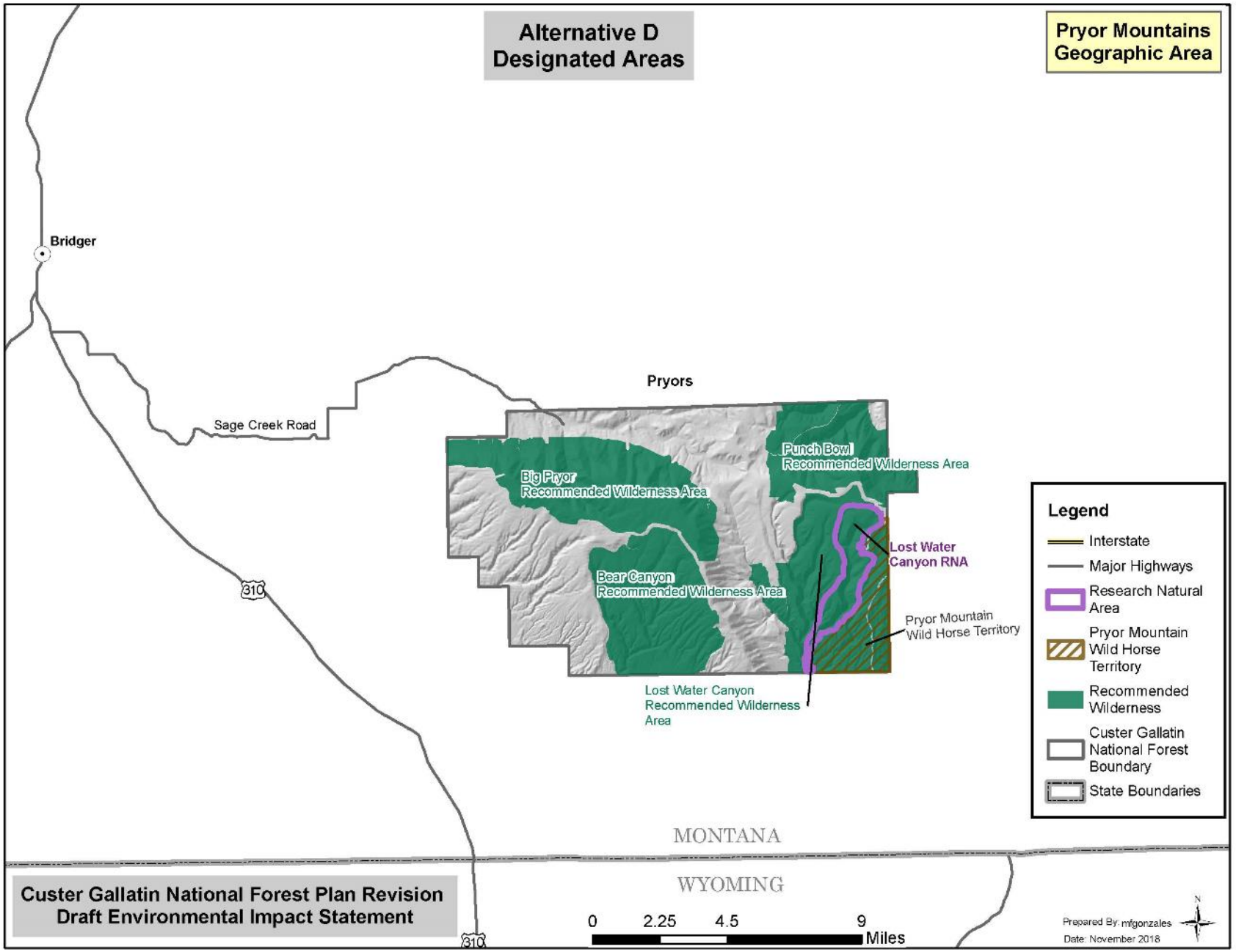
Prepared By: mfgonzales
Date: November 2018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State Boundaries
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Date: November 2018
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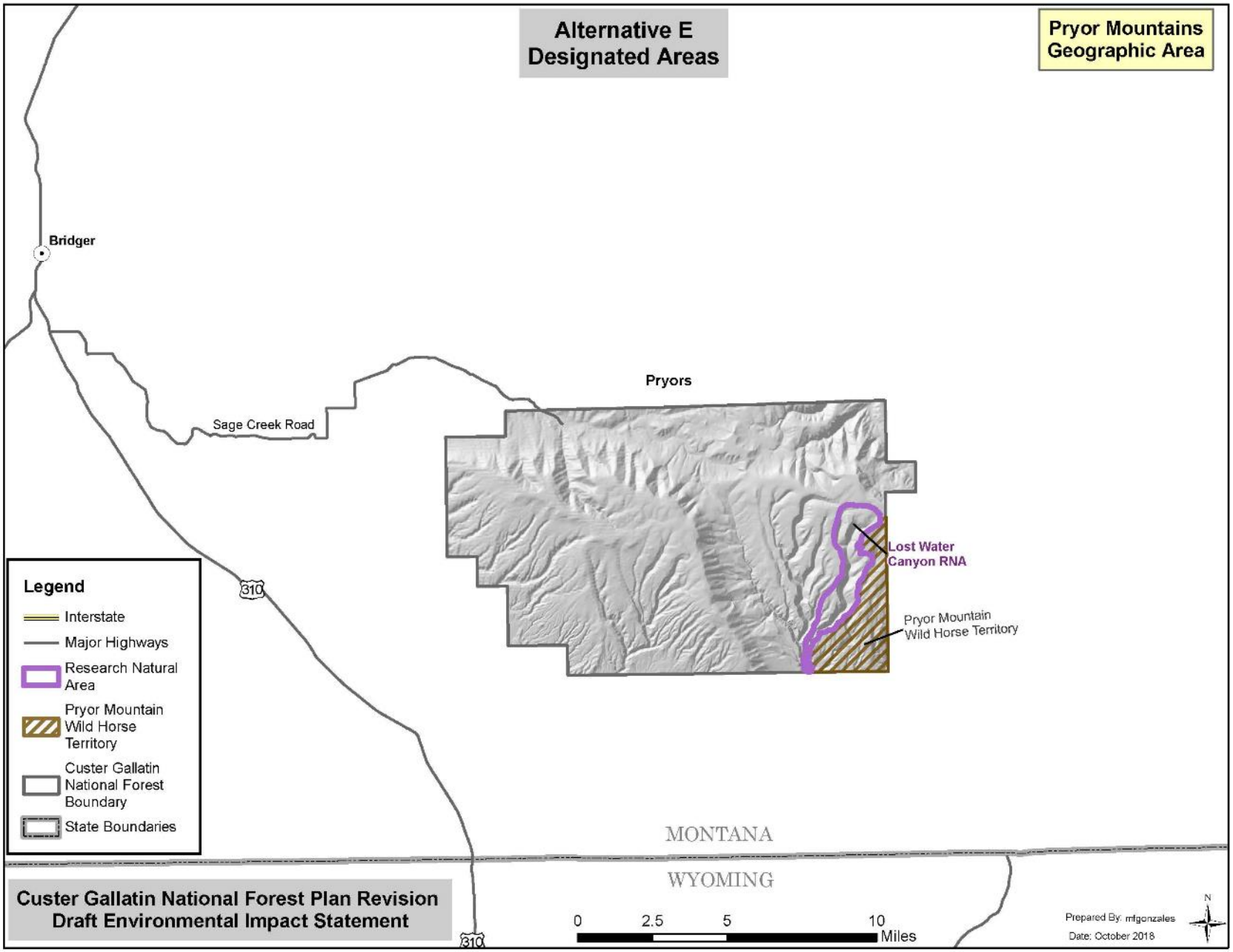
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Lost Water
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Legend
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Pryor Mountain Wild Horse Territory
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State Boundaries
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WYOMING
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Miles
Prepared By: mfgonzales
Date: October 2018
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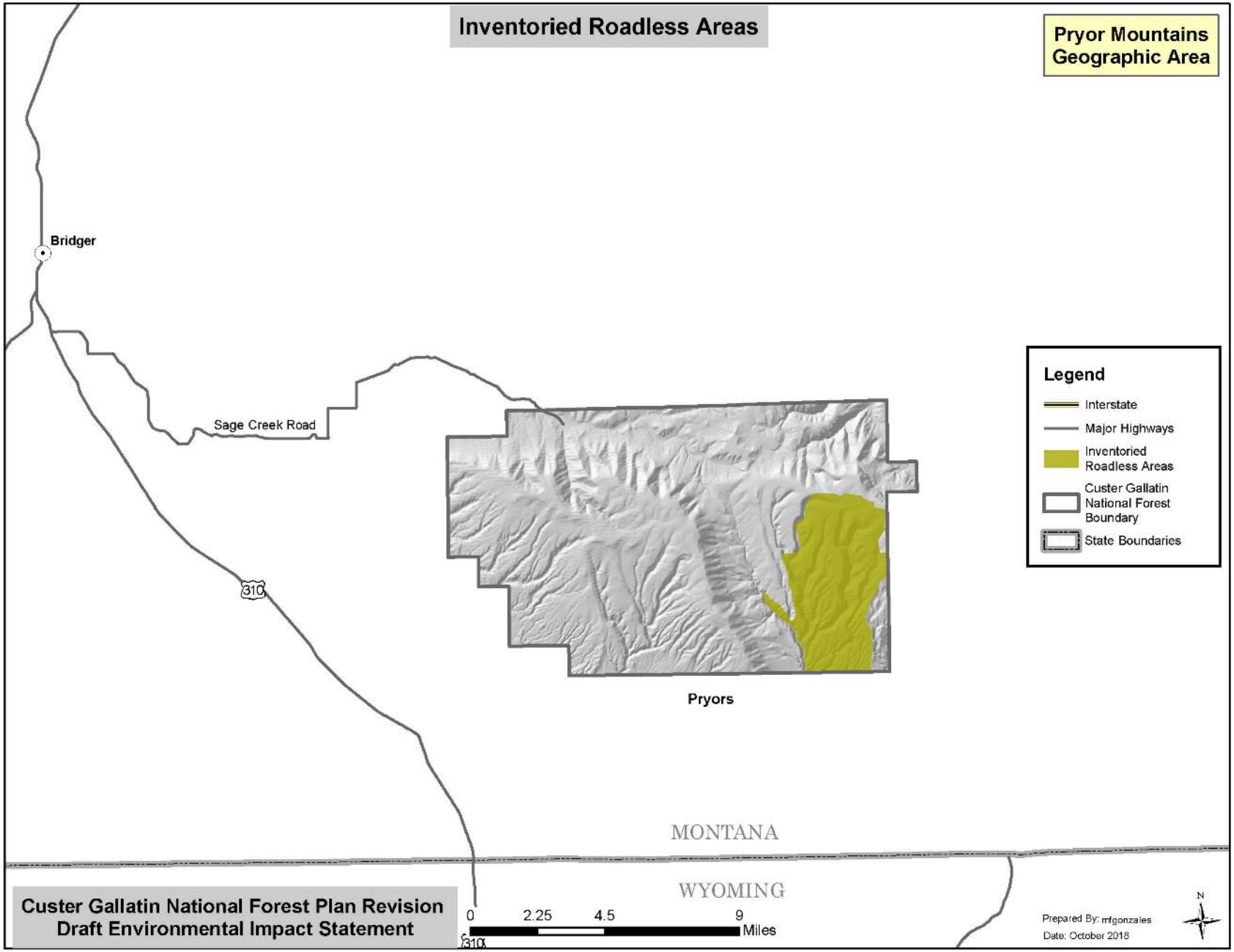
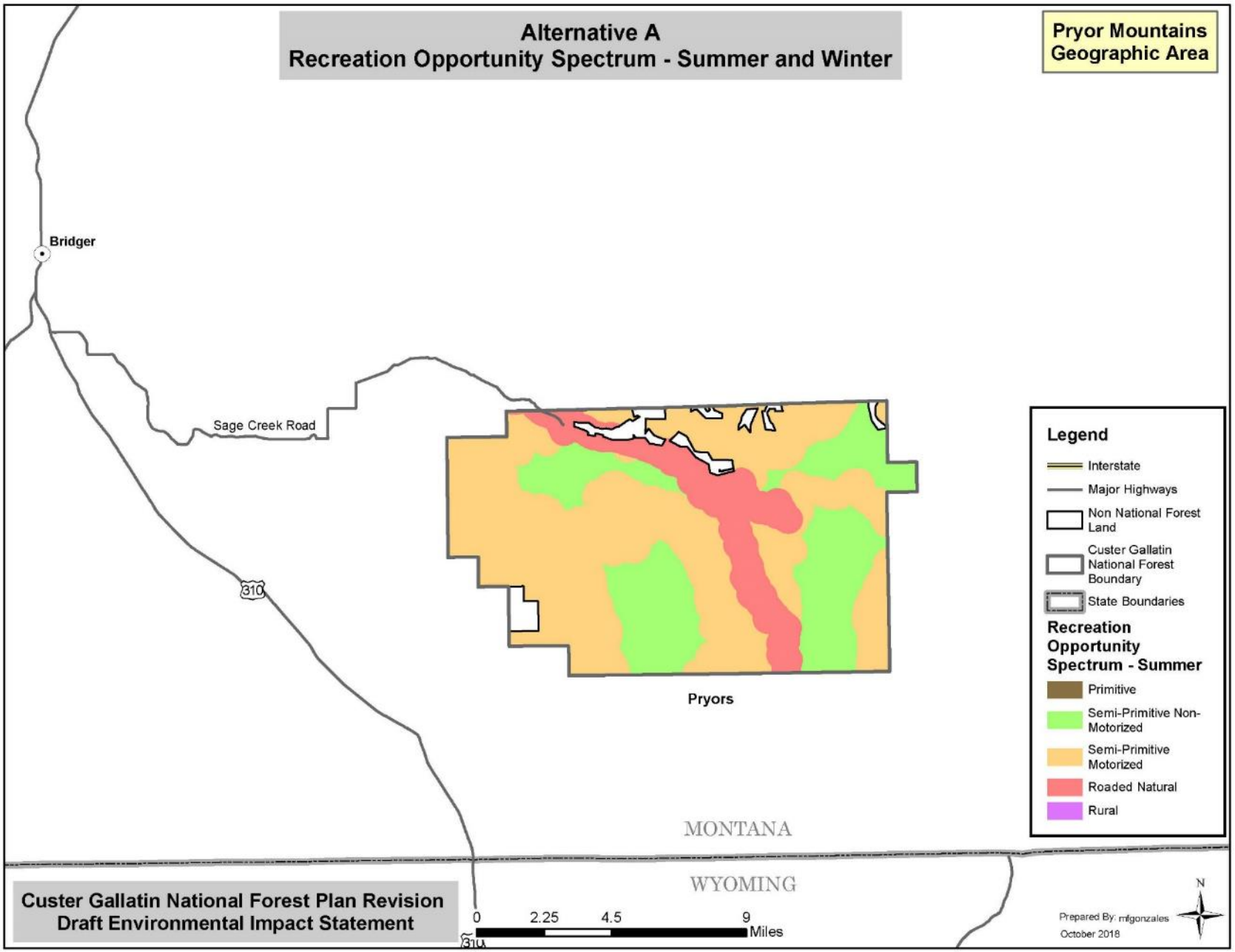
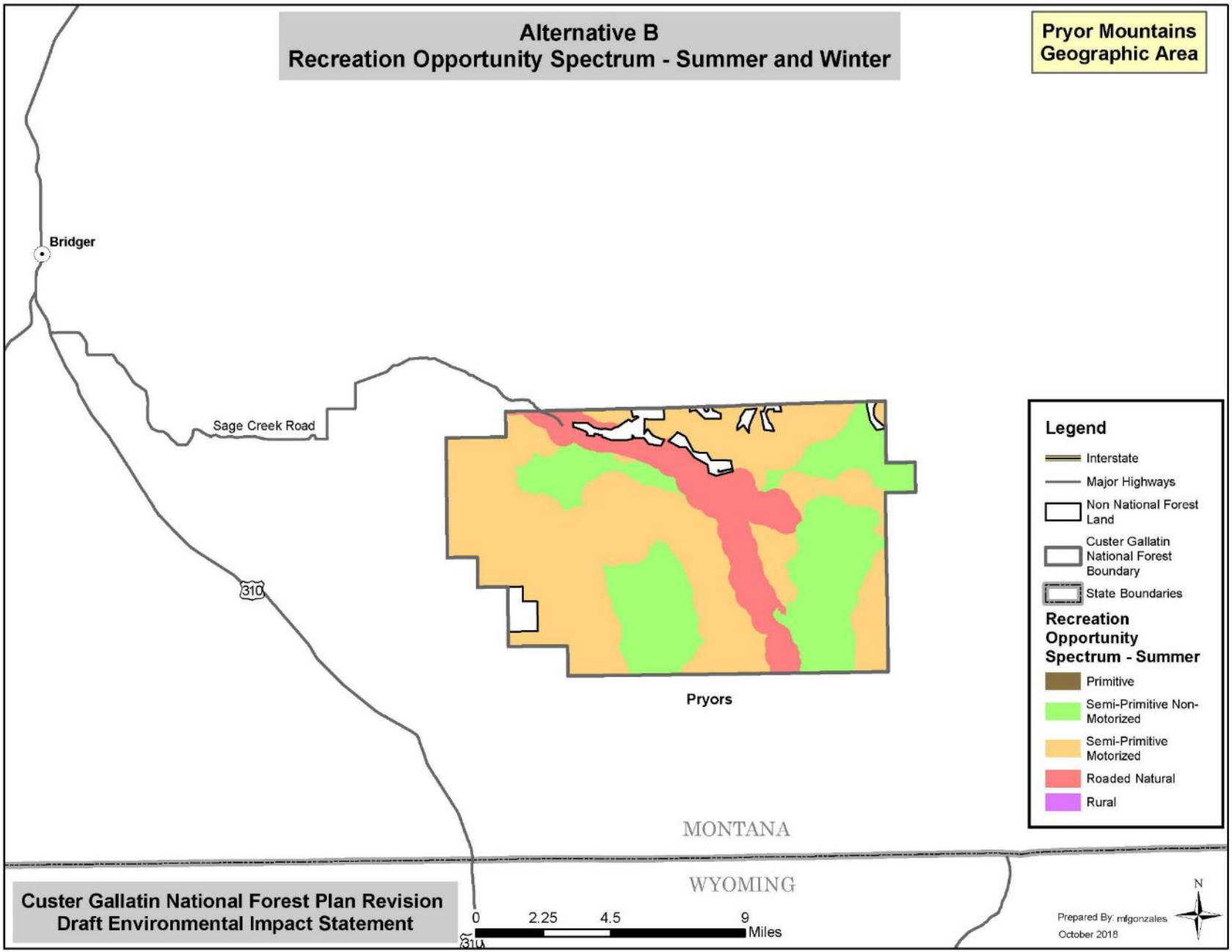
Inventoried Roadless Areas



Recreation Opportunity Spectrum – Summer and Winter

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WYOMING
Legend
Interstate
Major Highways
Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
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Miles
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Prepared By: mfgonzales
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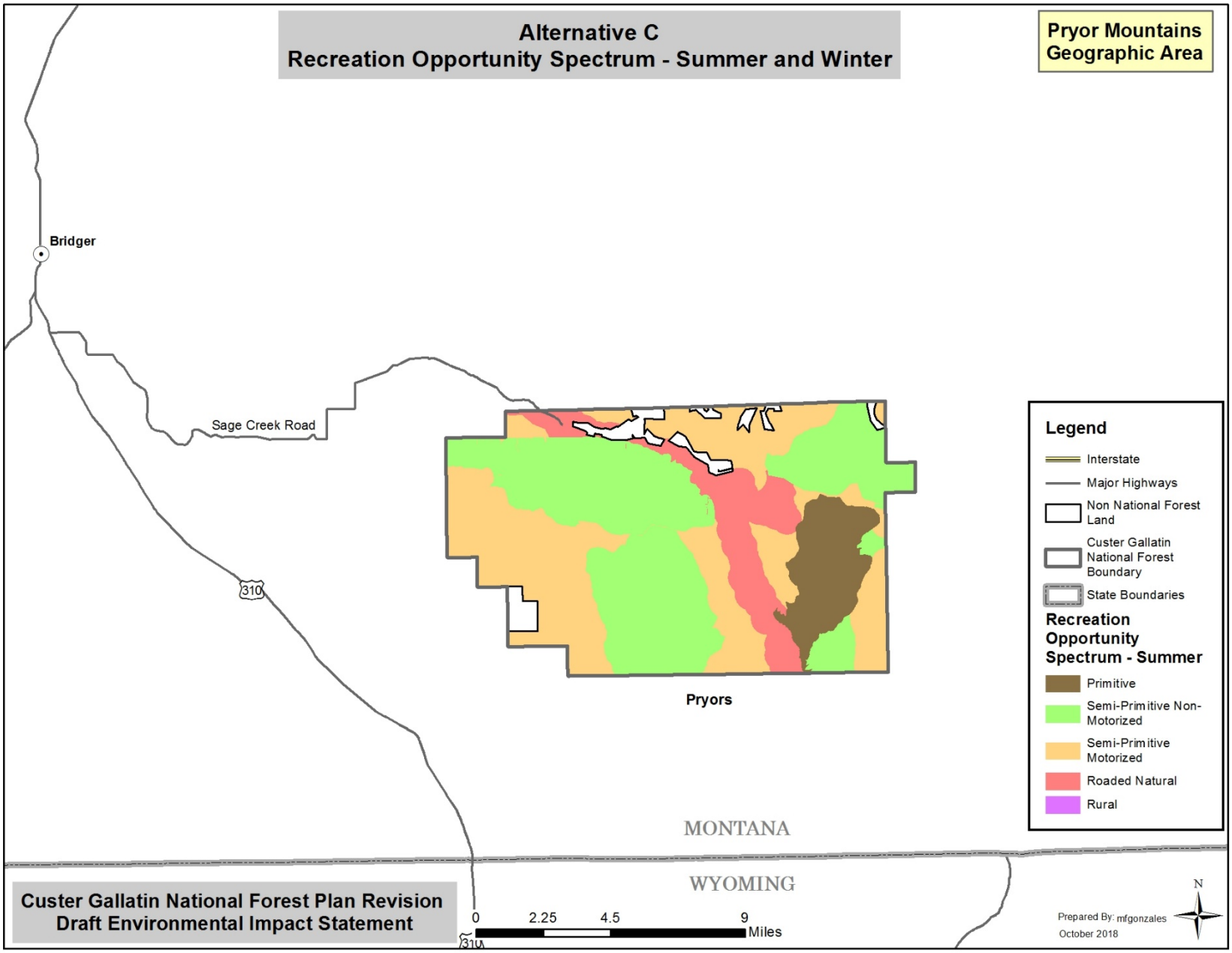
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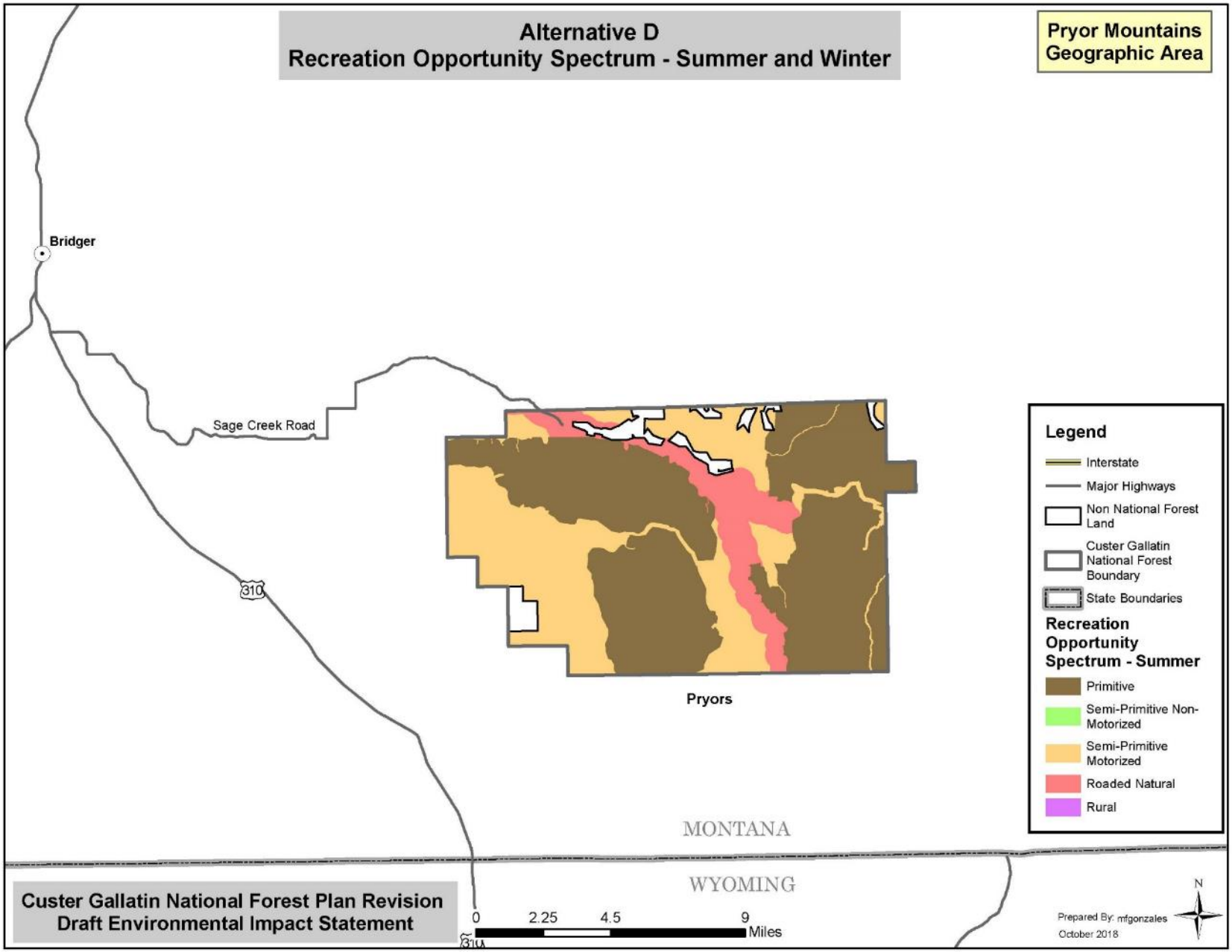
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Pryors
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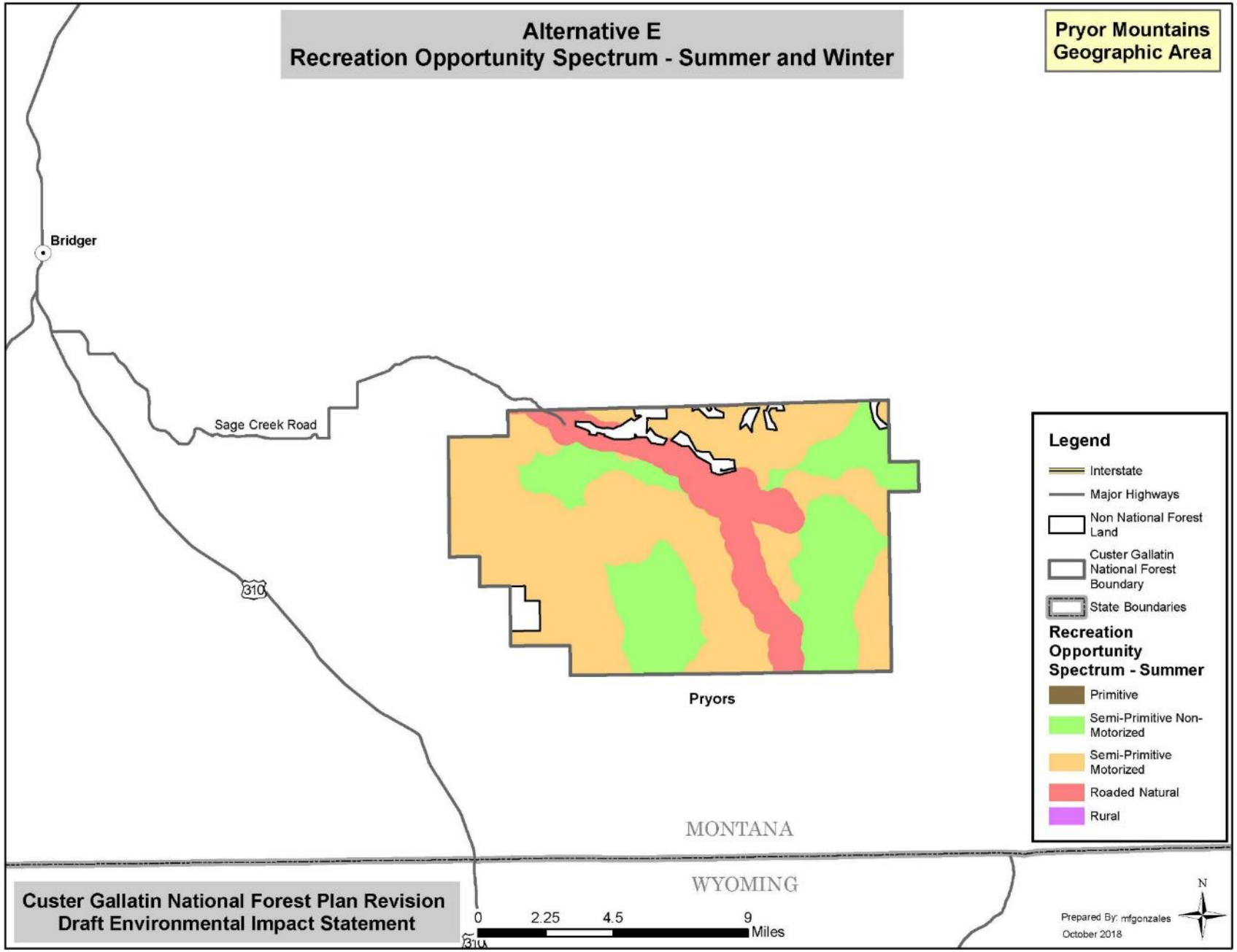
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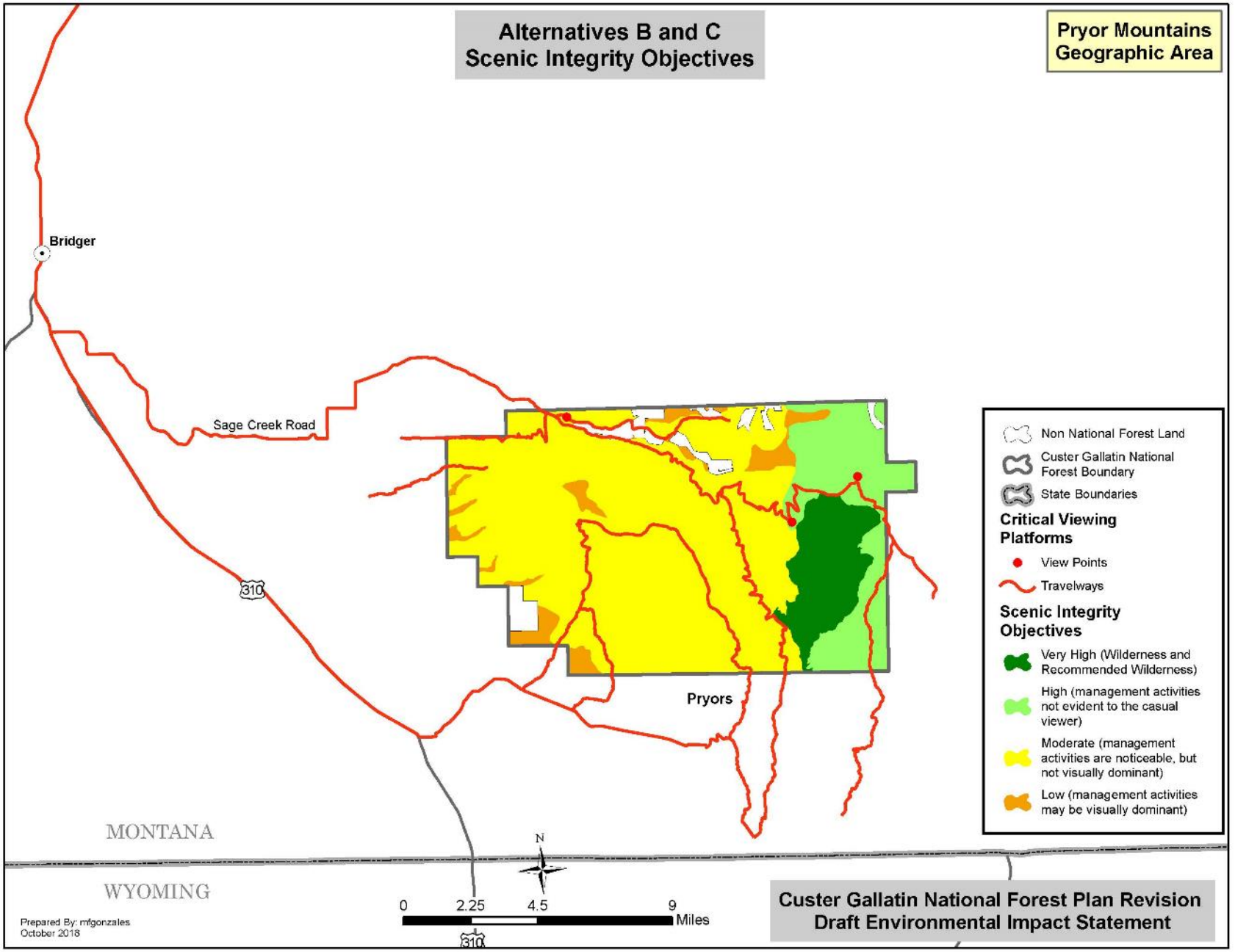
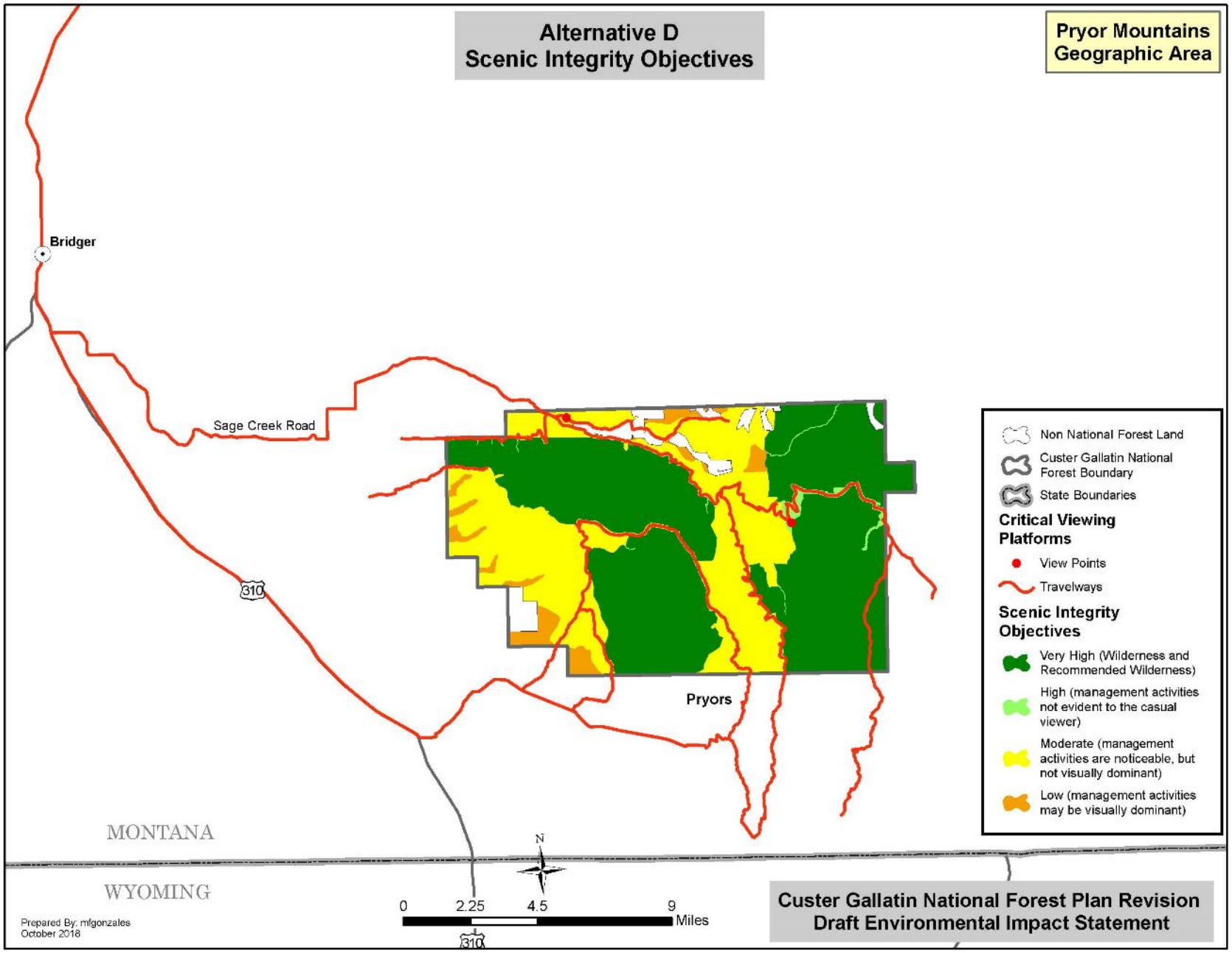
Scenic Integrity Objectives

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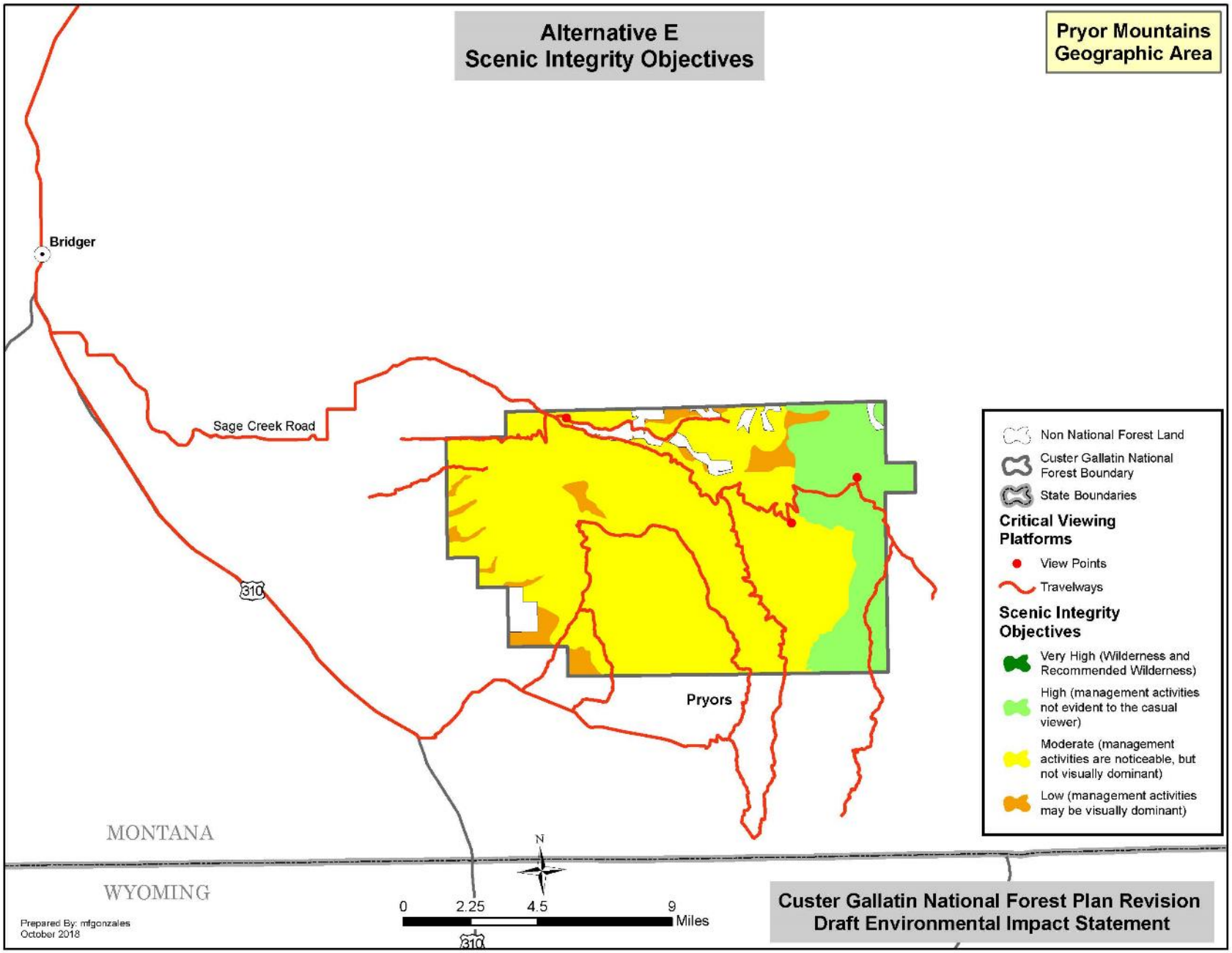
Prepared By: mfgonzales
October 2018
Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Critical Viewing Platforms
View Points
Travelways
Scenic Integrity Objectives
Very High (Wilderness and Recommended Wilderness)
High (management activities not evident to the casual viewer)
Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement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MONTANA
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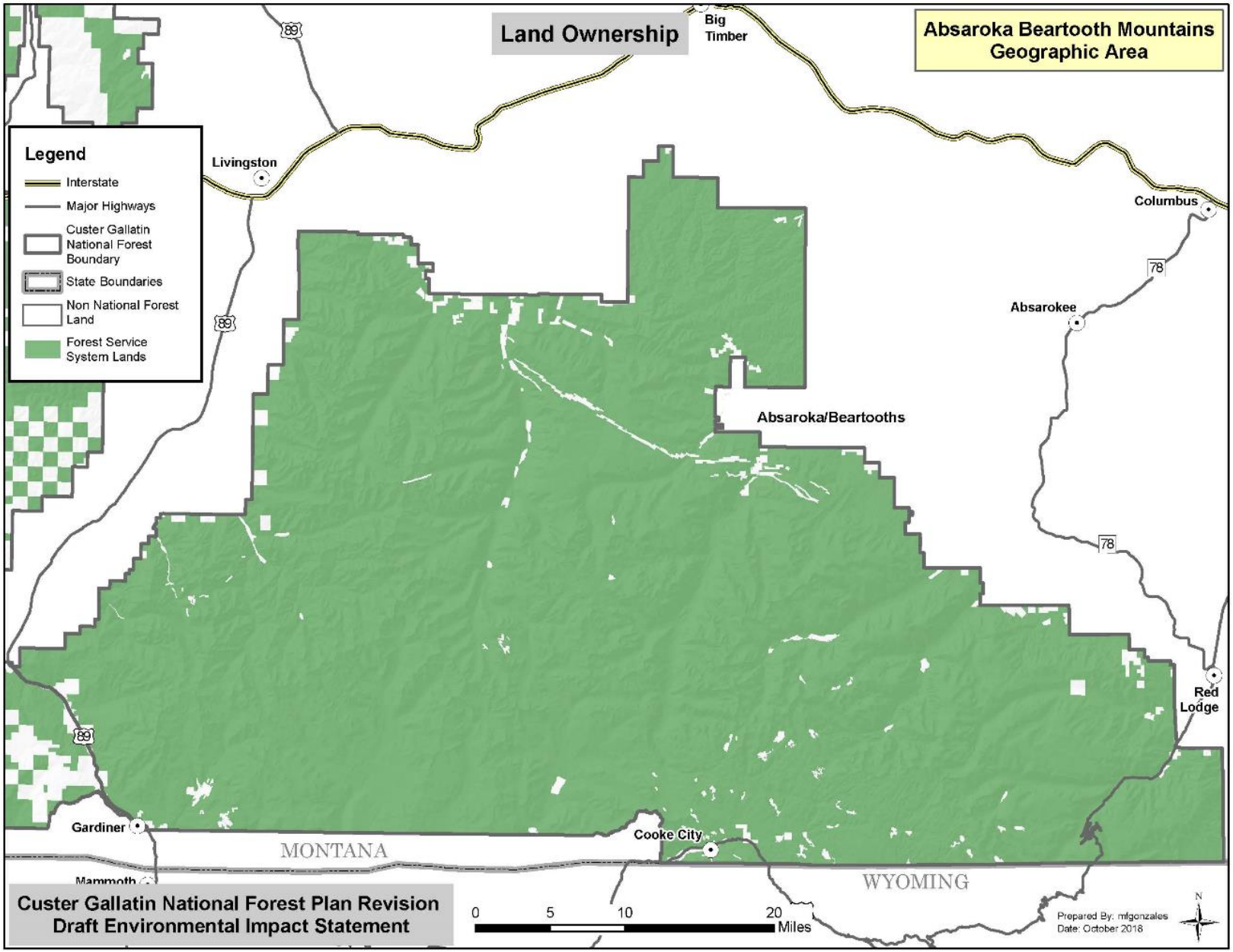
Geographic Area Maps – Absaroka Beartooth Mountains Geographic Area

Land Ownership



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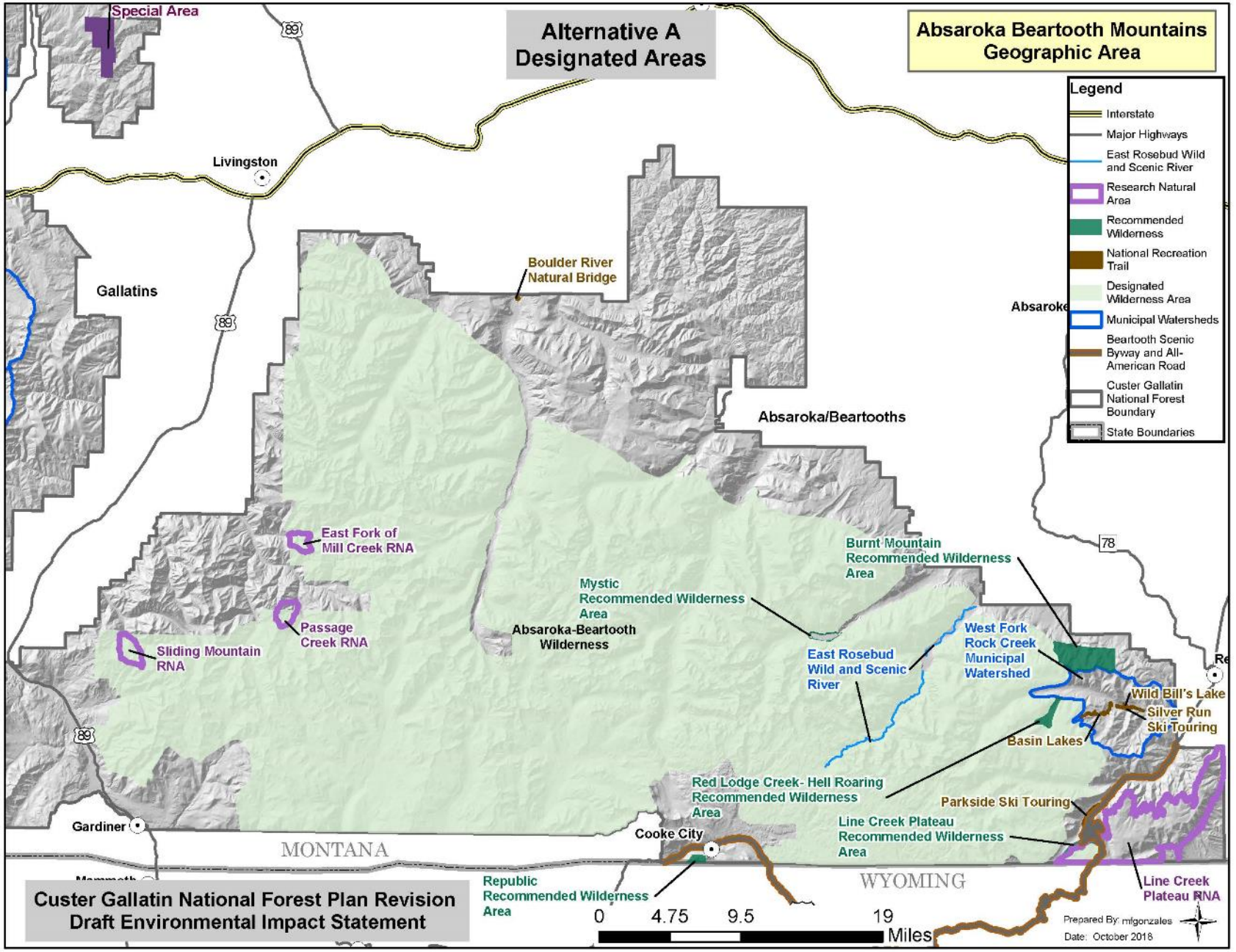

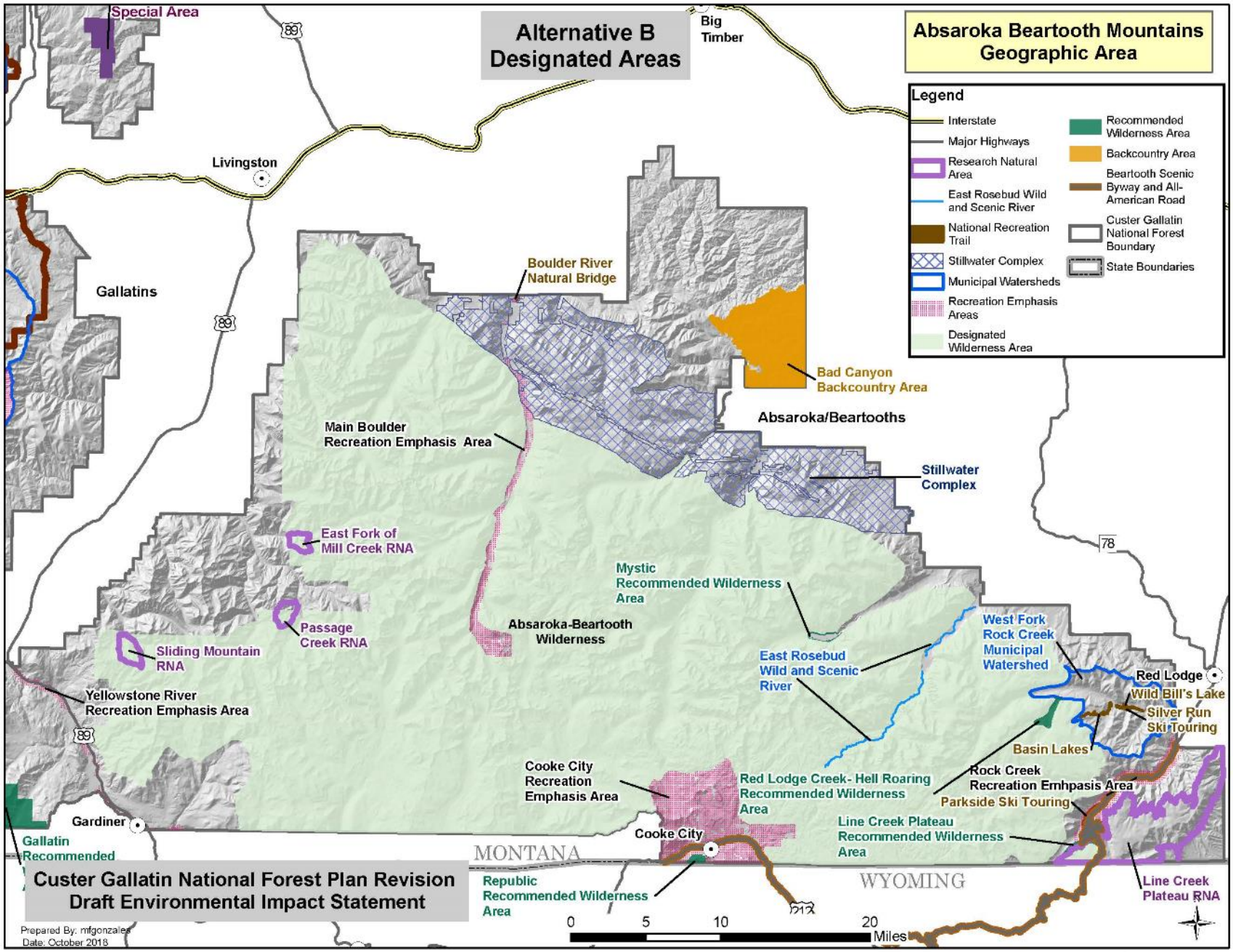
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Geographic Area
Legend
Interstate
Major Highways
Research Natural Area
East Rosebud Wild and Scenic River
National Recreation Trail
Stillwater Complex
Municipal Watersheds
Recreation Emphasis Areas
Designated Wilderness Area
Recommended Wilderness Area
Backcountry Area
Beartooth Scenic Byway and All-American Road
Custer Gallatin National Forest Boundary
State Boundaries
Special Area
Big Timber
Livingston
Gallatins
Boulder River Natural Bridge
Bad Canyon Backcountry Area
Absaroka/Beartooths
Main Boulder Recreation Emphasis Area
Stillwater Complex
East Fork of Mill Creek RNA
Mystic Recommended Wilderness Area
Absaroka-Beartooth Wilderness
Passage Creek RNA
Sliding Mountain RNA
Yellowstone River Recreation Emphasis Area
West Fork Rock Creek Municipal Watershed
East Rosebud Wild and Scenic River
Red Lodge
Wild Bill's Lake
Silver Run Ski Touring
Basin Lakes
Rock Creek Recreation Emhpasis Area
Parkside Ski Touring
Cooke City Recreation Emphasis Area
Red Lodge Creek- Hell Roaring Recommended Wilderness Area
Line Creek Plateau Recommended Wilderness Area
Gardiner
Gallatin Recommended
Cooke City
MONTANA
WYOMING
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Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
Prepared By: mfgonzales
Date: October 2018
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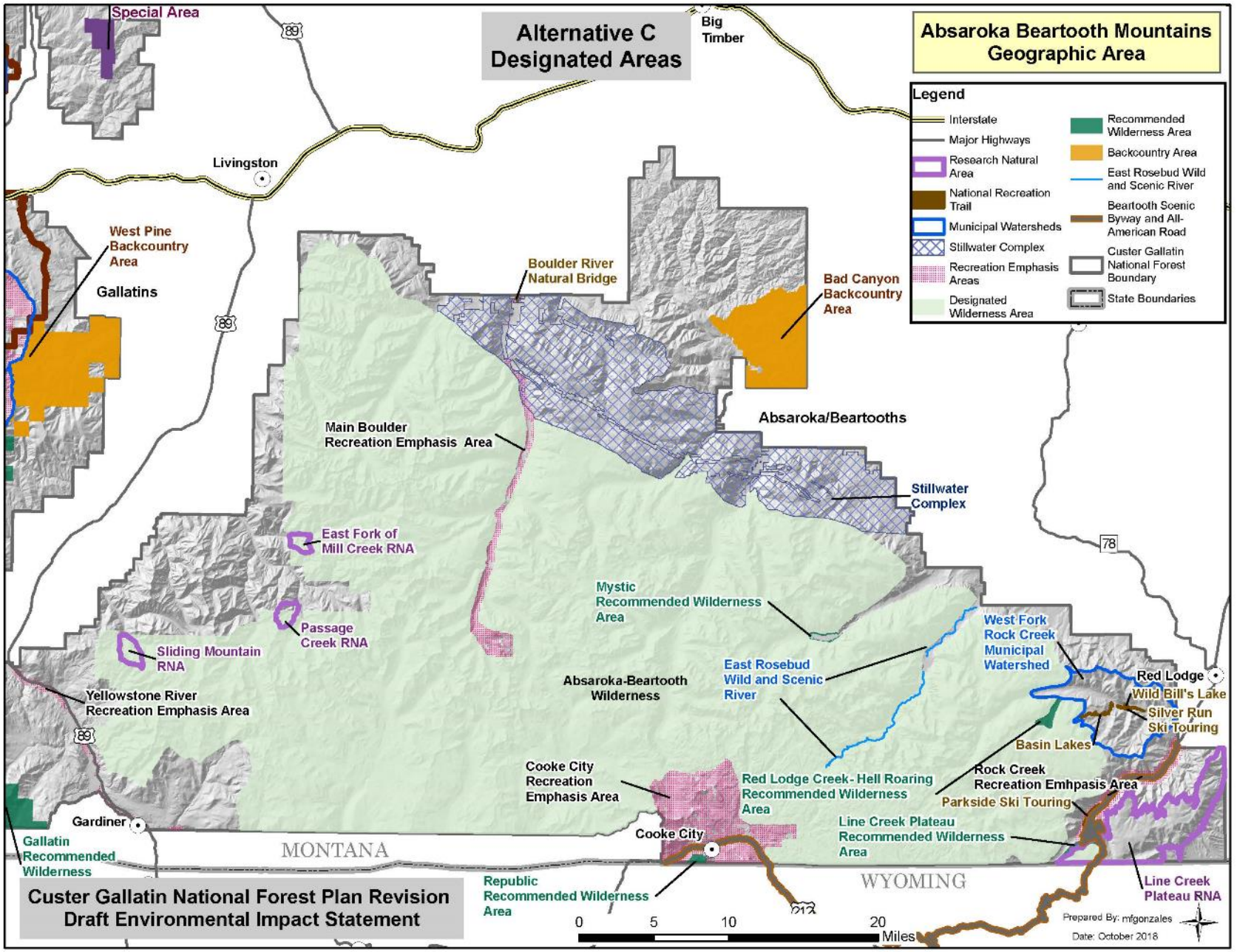
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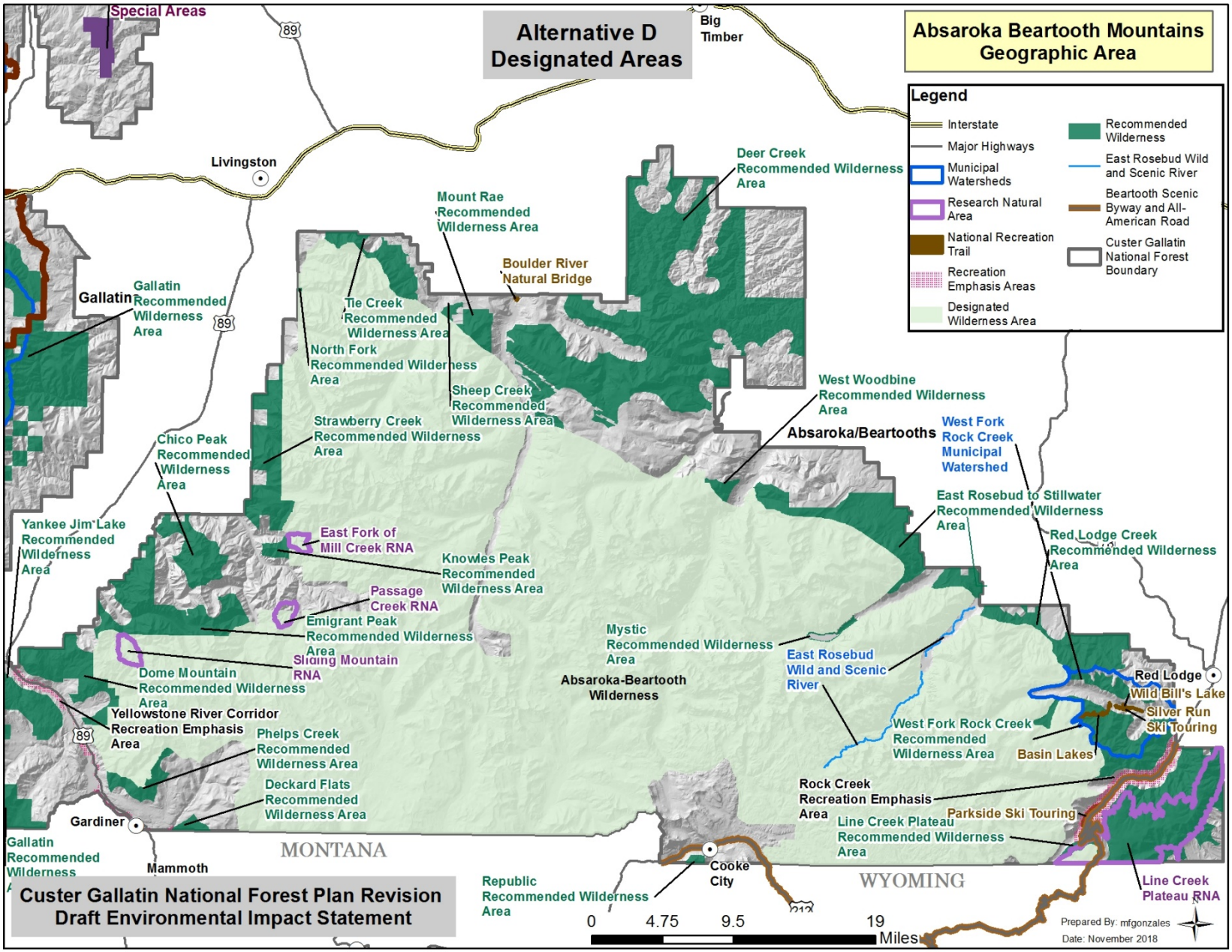
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East Rosebud to Stillwater Recommended Wilderness Area
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Passage Creek RNA
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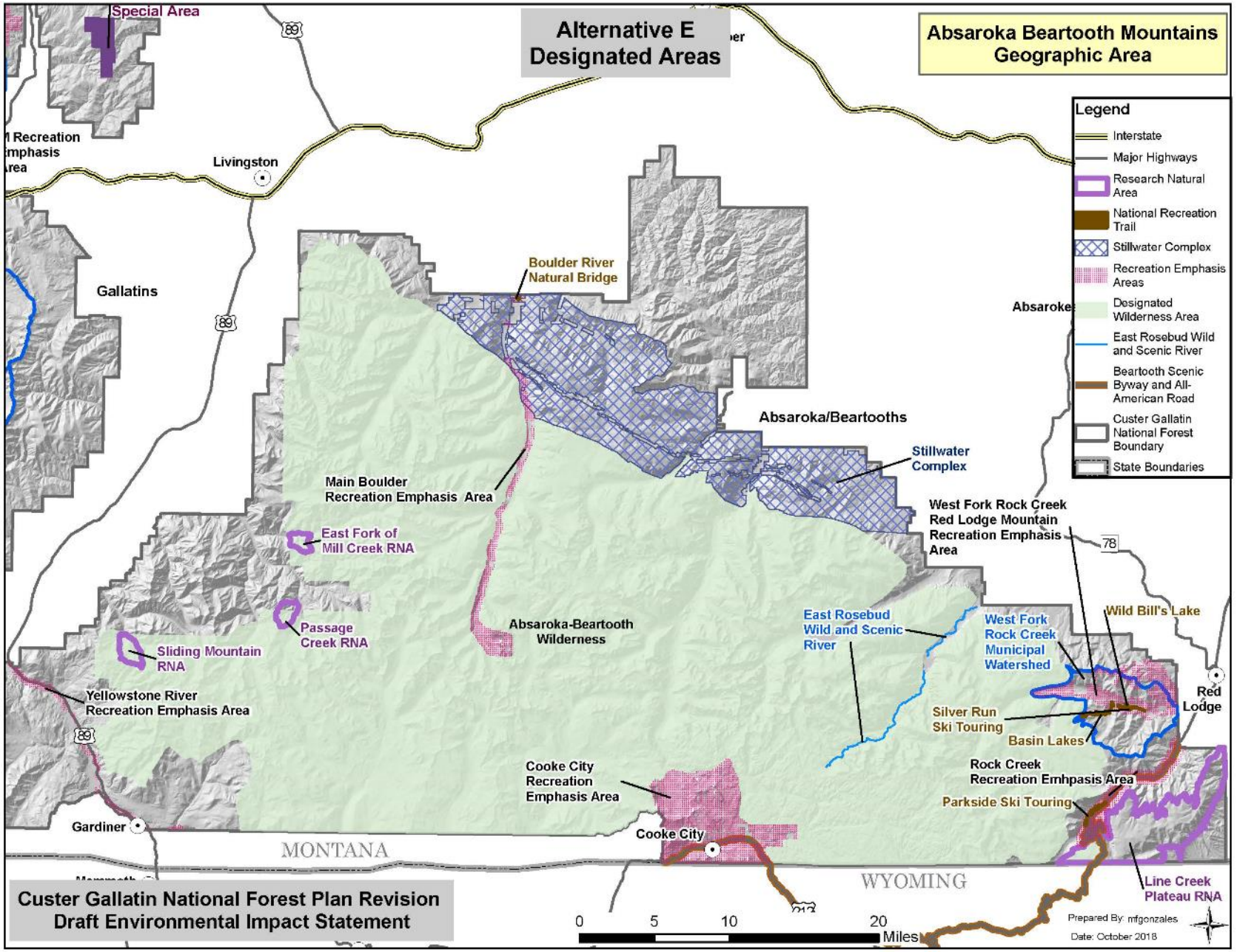
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Boulder River
Natural Bridge
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Stillwater
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Recreation Emphasis Area
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Red Lodge Mountain
Recreation Emphasis
Area
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Mill Creek RNA
Passage
Creek RNA
Sliding Mountain
RNA
Absaroka-Beartooth
Wilderness
East Rosebud
Wild and Scenic
River
West Fork
Rock Creek
Municipal
Watershed
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Lodge
Yellowstone River
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Silver Run
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Emphasis Area
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Gardiner
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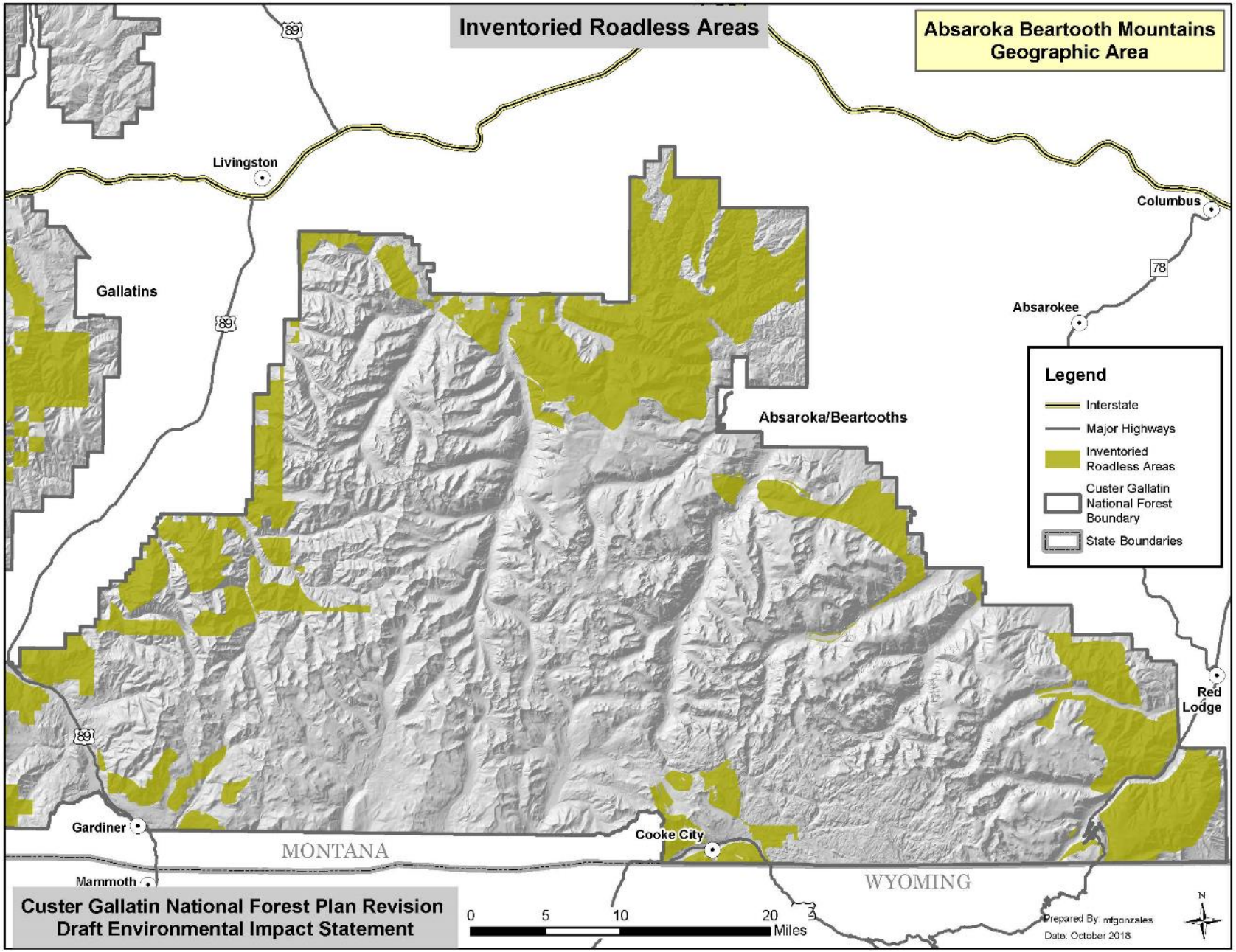
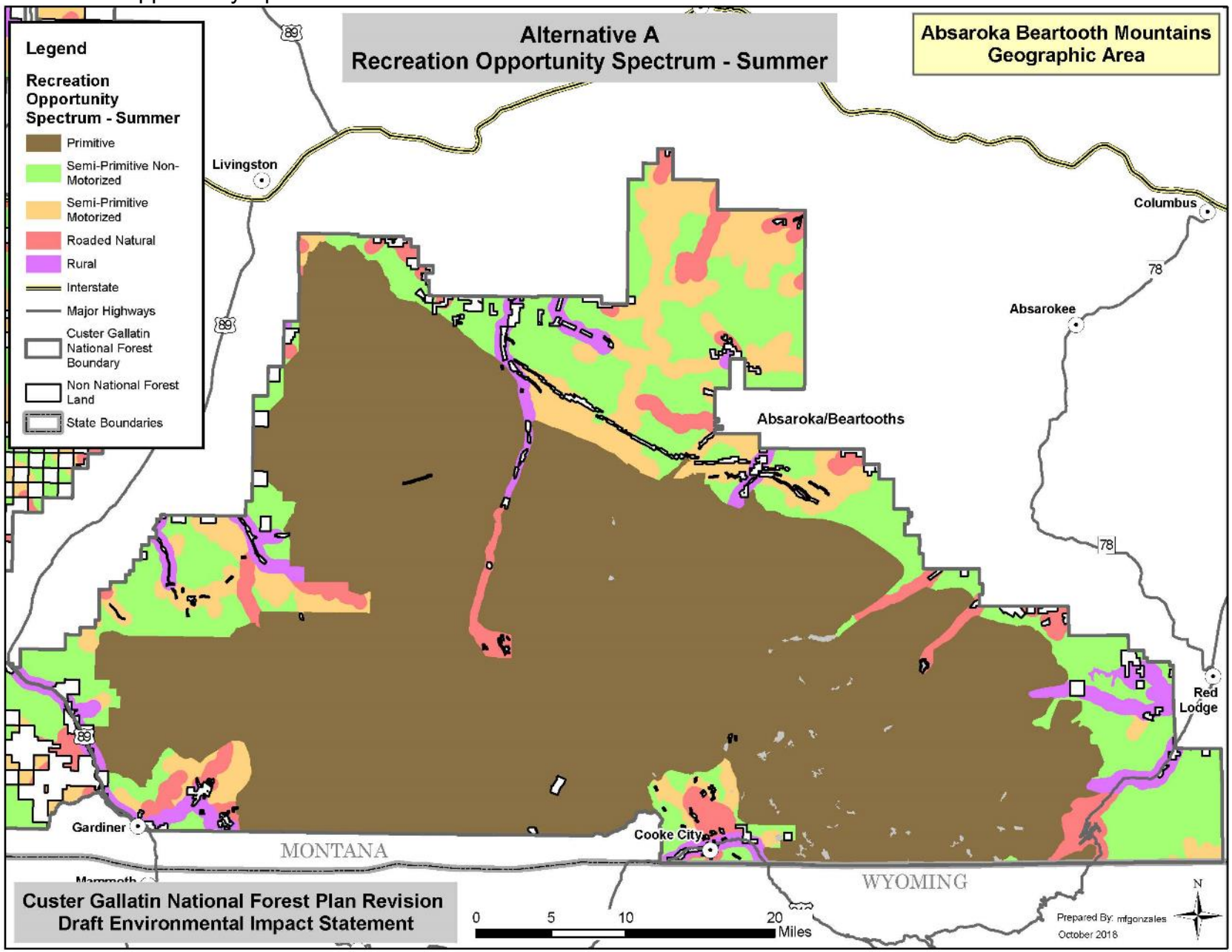
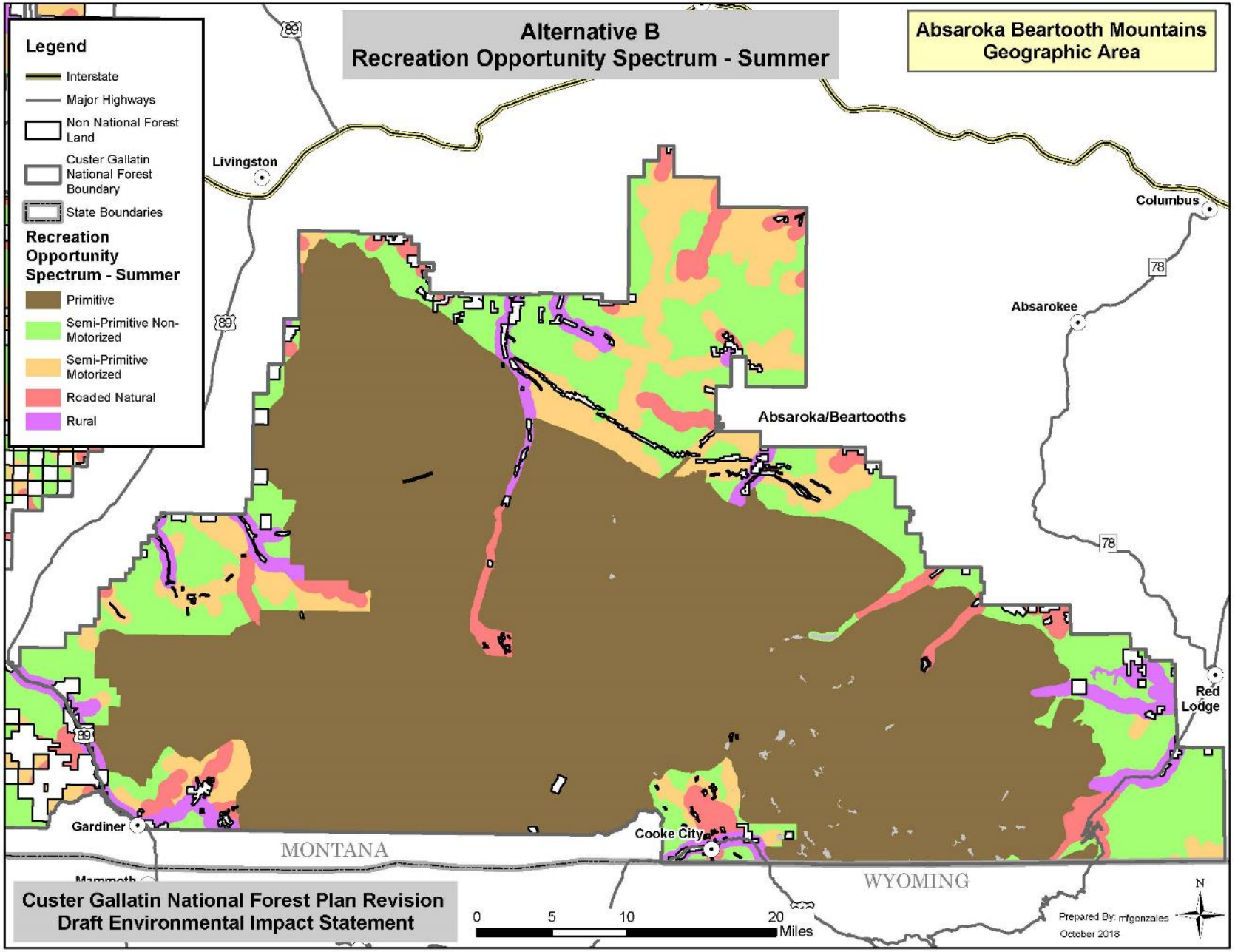
Date: October 2018

Inventoried Roadless Areas



Recreation Opportunity Spectrum – Summer

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Interstate
Major Highways
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State Boundaries
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Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
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Absaroka/Beartooths
Red Lodge
Gardiner
Cooke City
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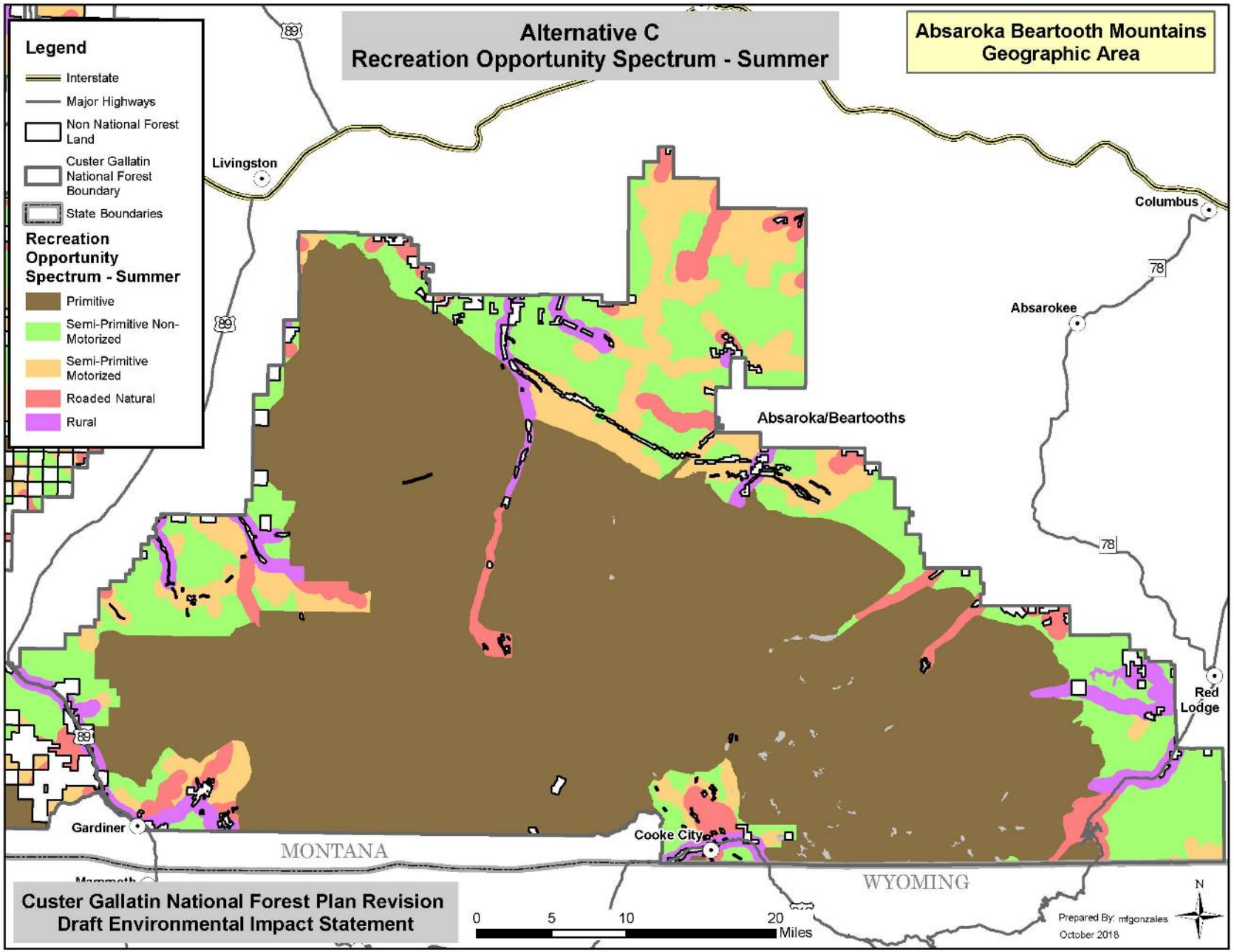
October 2018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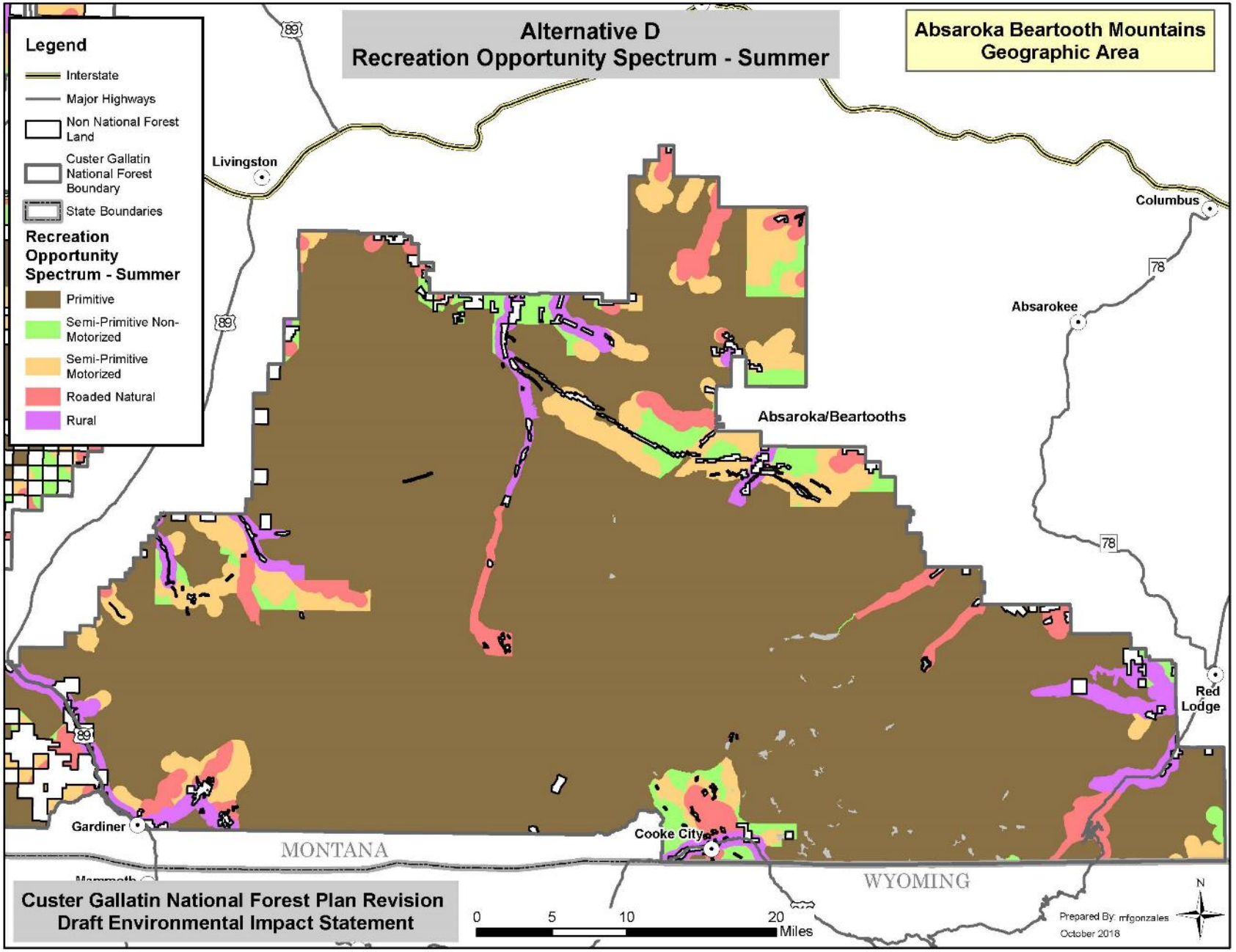
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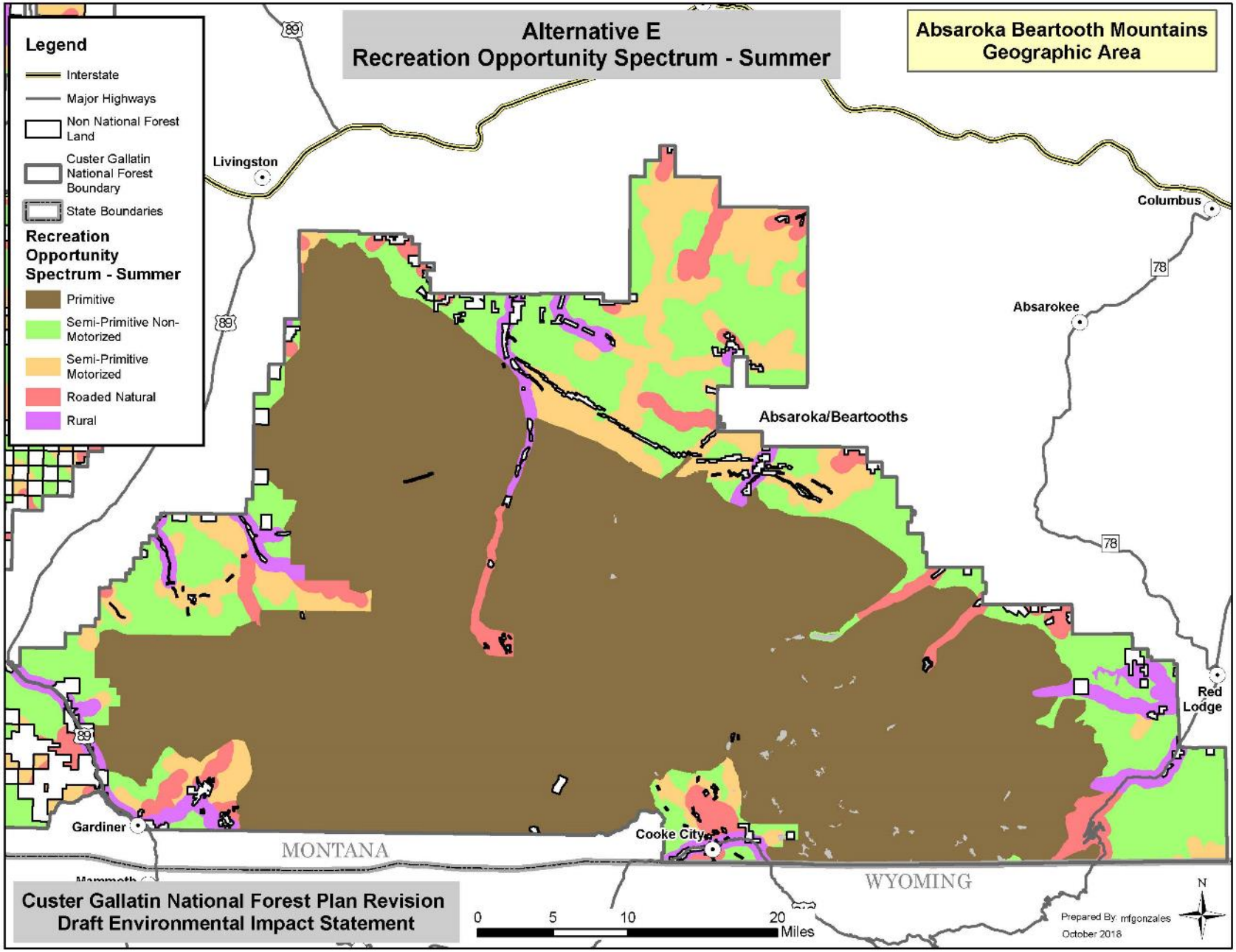
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MONTANA
WYOMING
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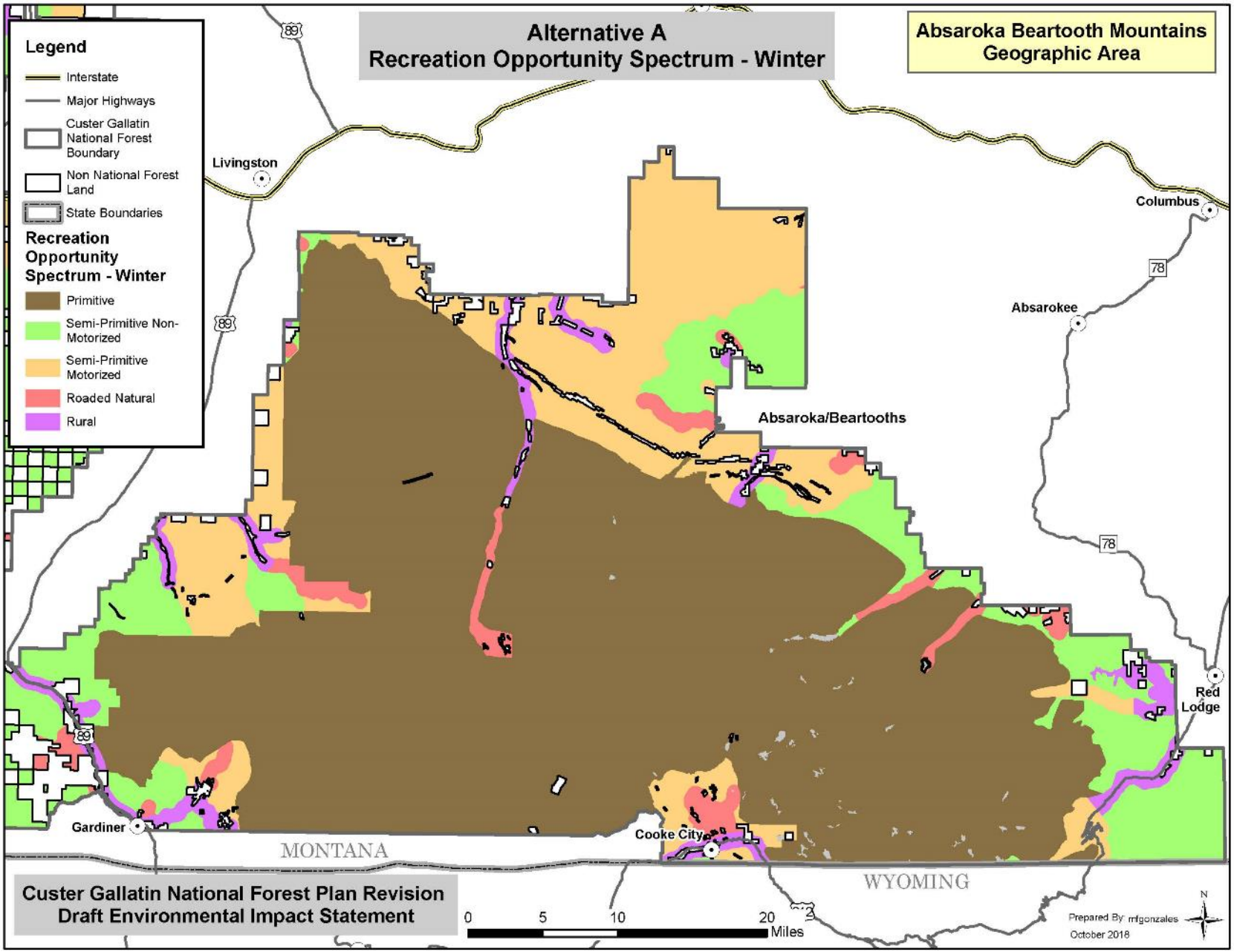
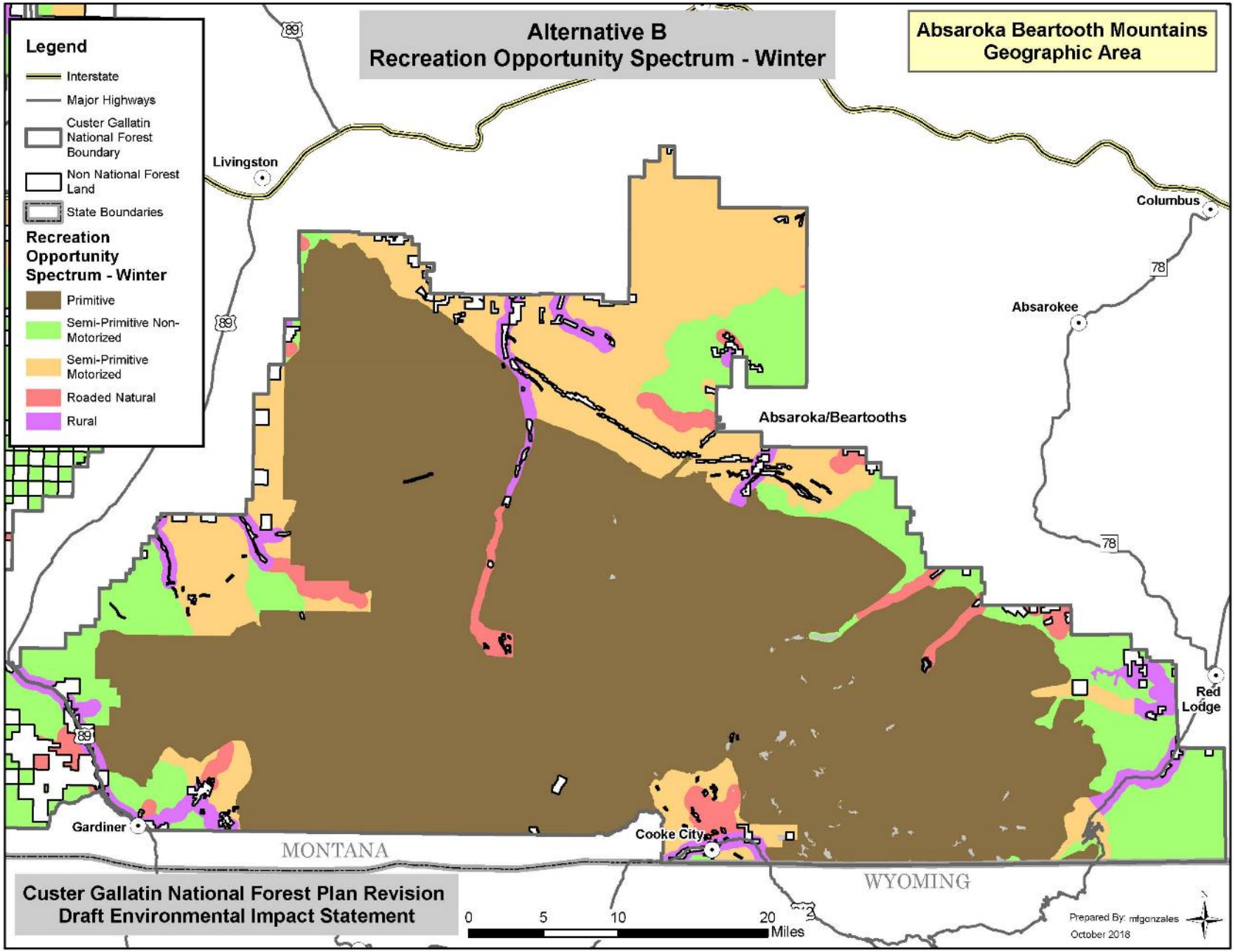
Recreation Opportunity Spectrum – Winter

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Interstate
Major Highways
Custer Gallatin National Forest Boundary
Non National Forest Land
State Boundaries
Recreation Opportunity Spectrum - Winter
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Livingston
Columbus
Absarokee
Absaroka/Beartooths
Red Lodge
Gardiner
Cooke City
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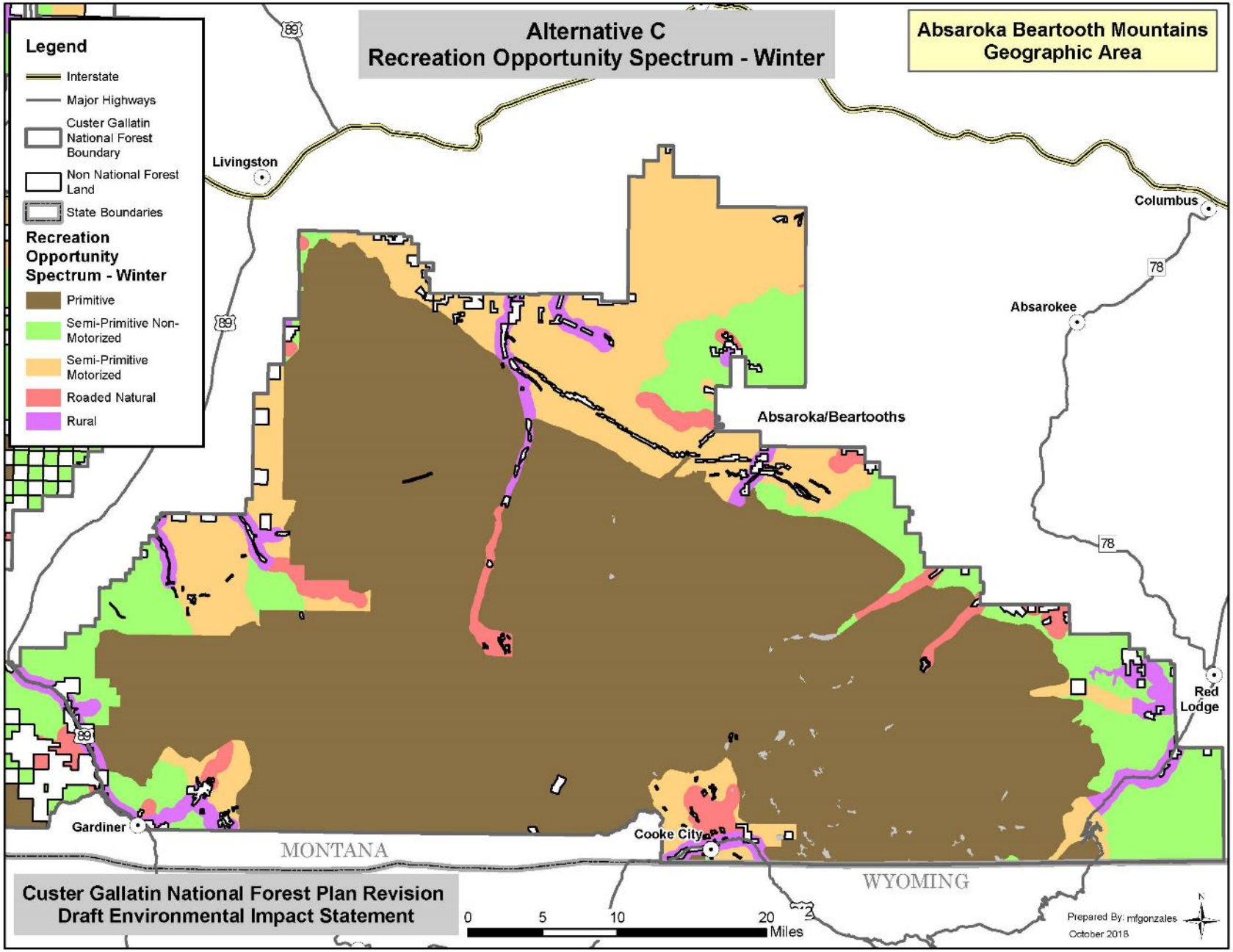
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Statement
0 5 10 20
Miles
Prepared By: mfgonzales
October 2018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State Boundaries
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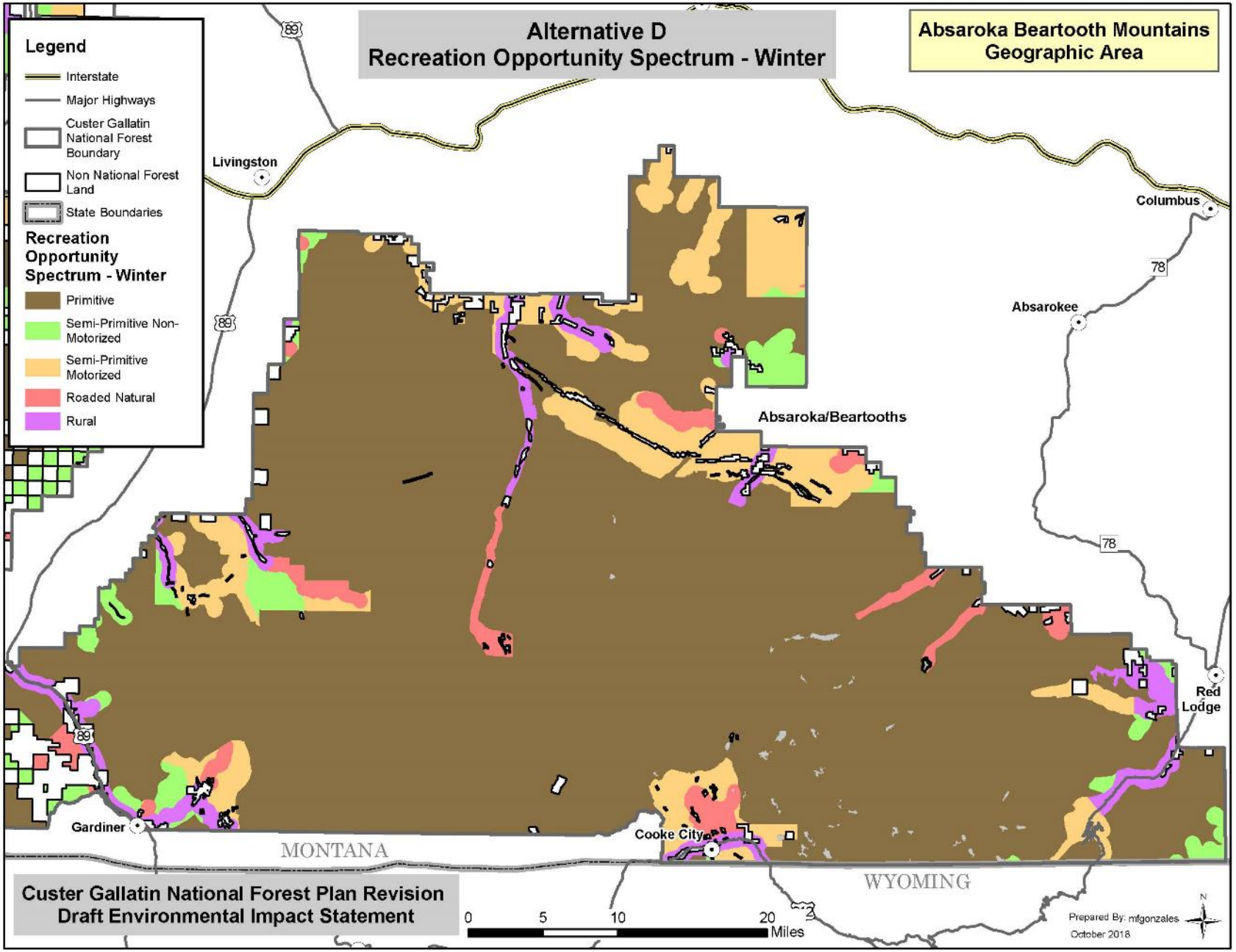
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Major Highways
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Non National Forest Land
State Boundaries
Recreation Opportunity Spectrum - Winter
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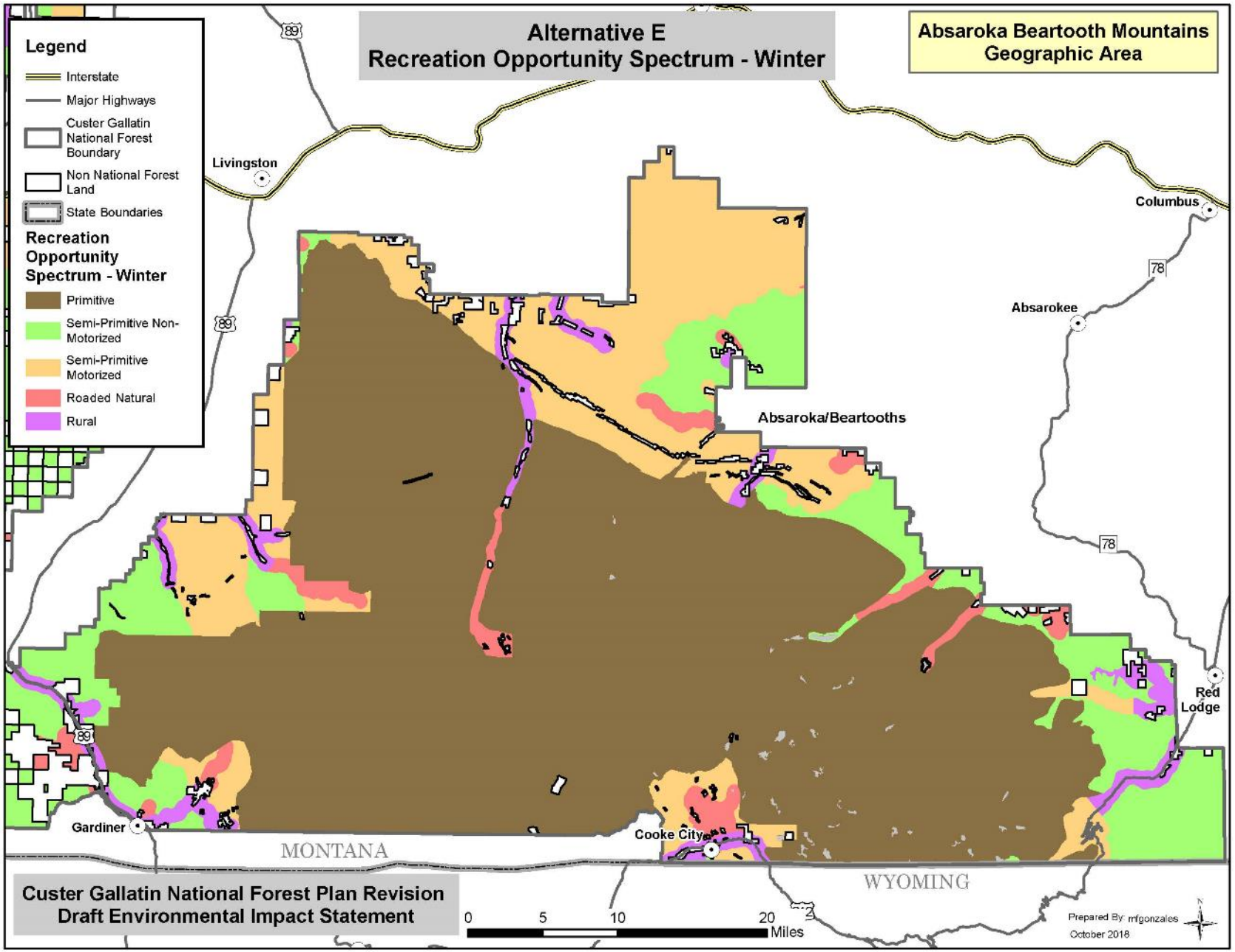
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Non National Forest Land
State Boundaries
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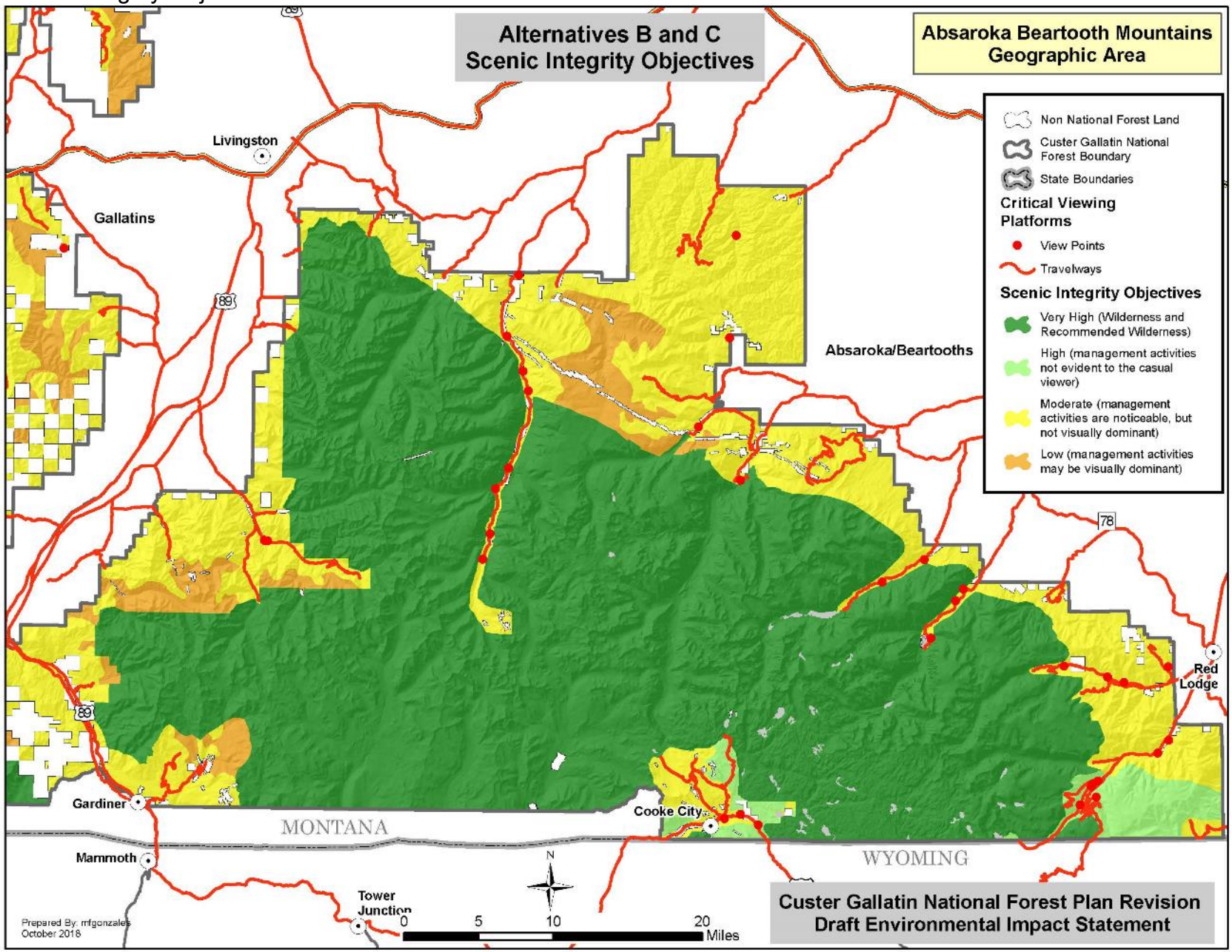
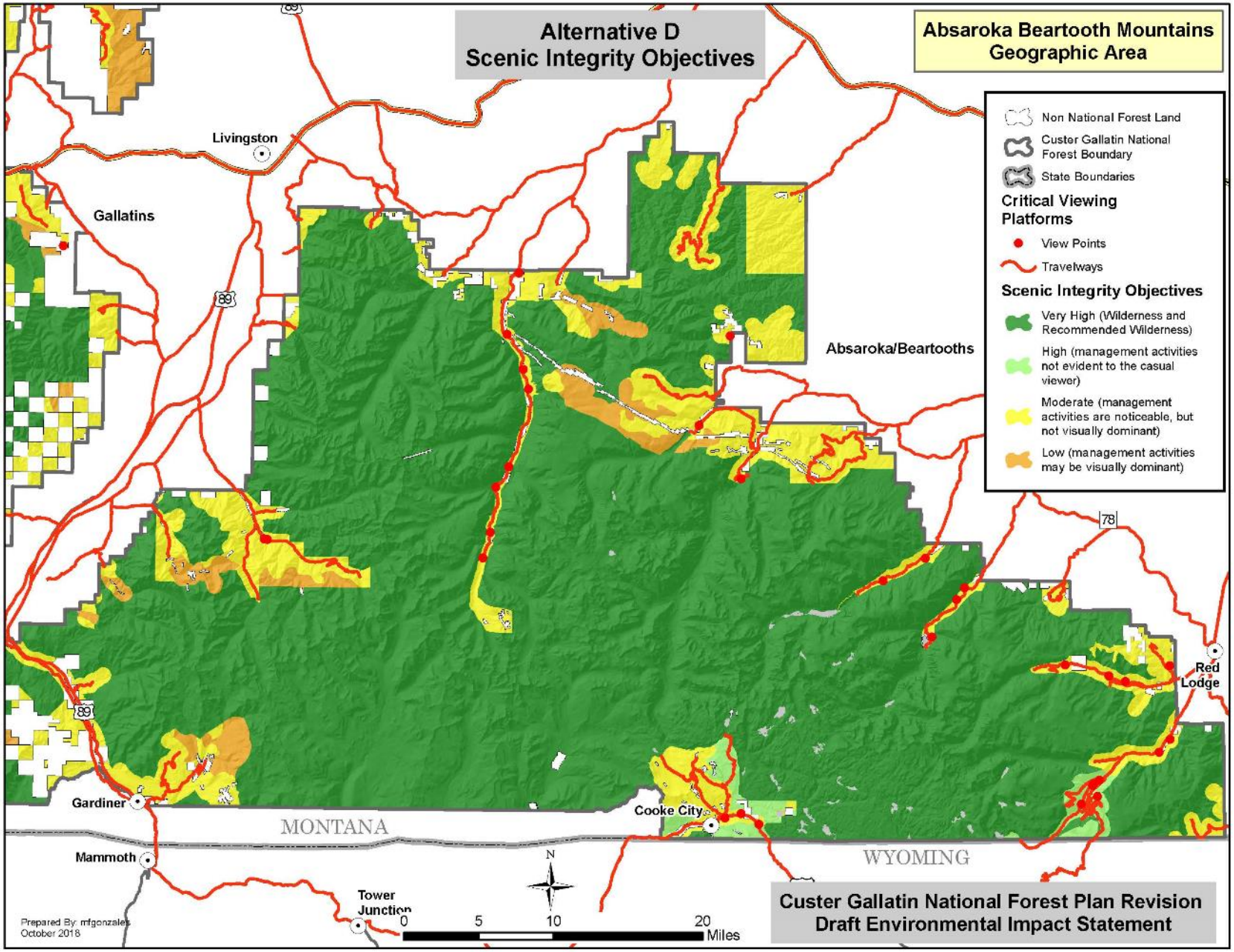
Scenic Integrity Objectives

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Non National Forest Land
Custer Gallatin National Forest Boundary
State Boundaries
Critical Viewing Platforms
View Points
Travelways
Scenic Integrity Objectives
Very High (Wilderness and Recommended Wilderness)
High (management activities not evident to the casual viewer)
Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
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WYOMING
Mammoth
Tower Junction
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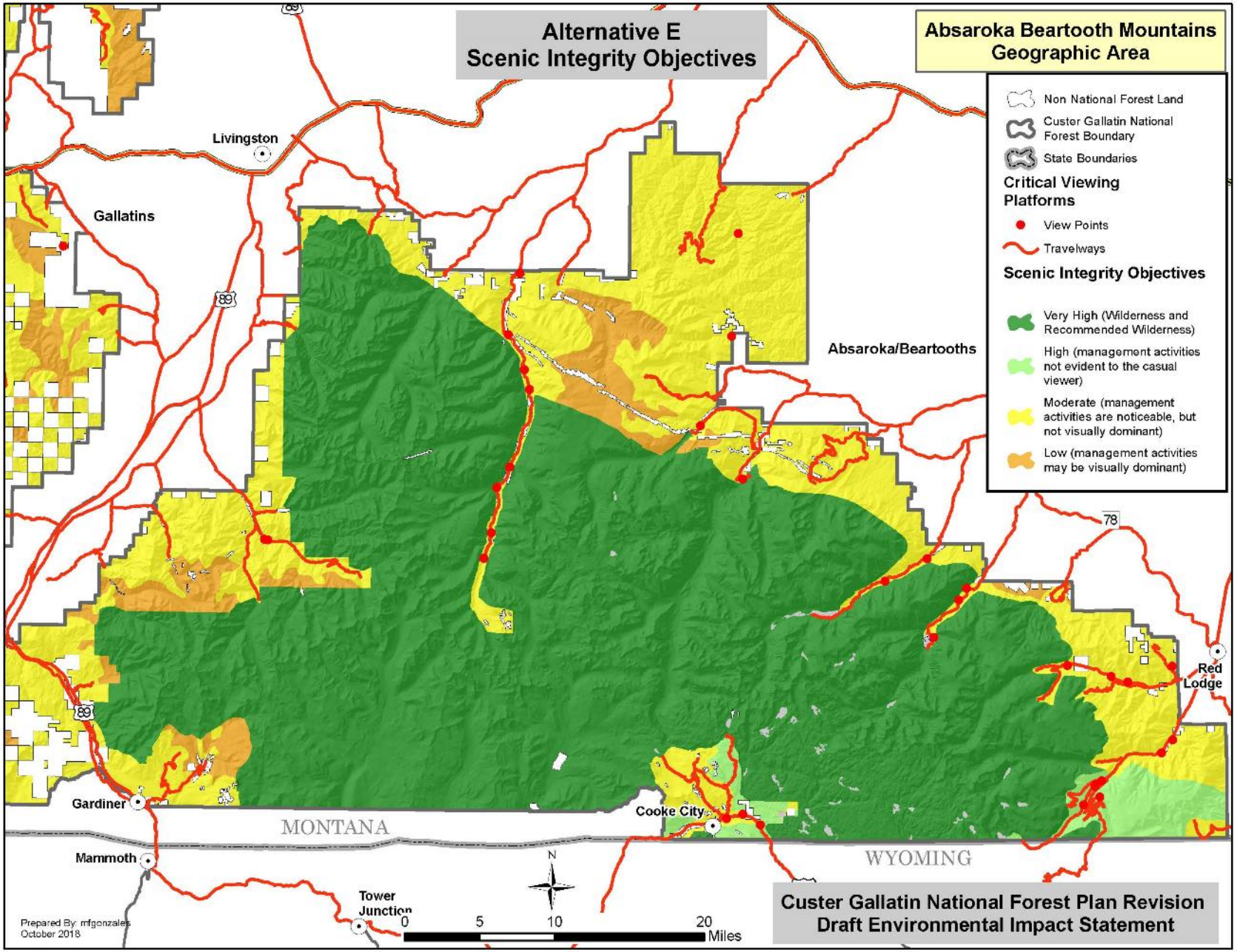
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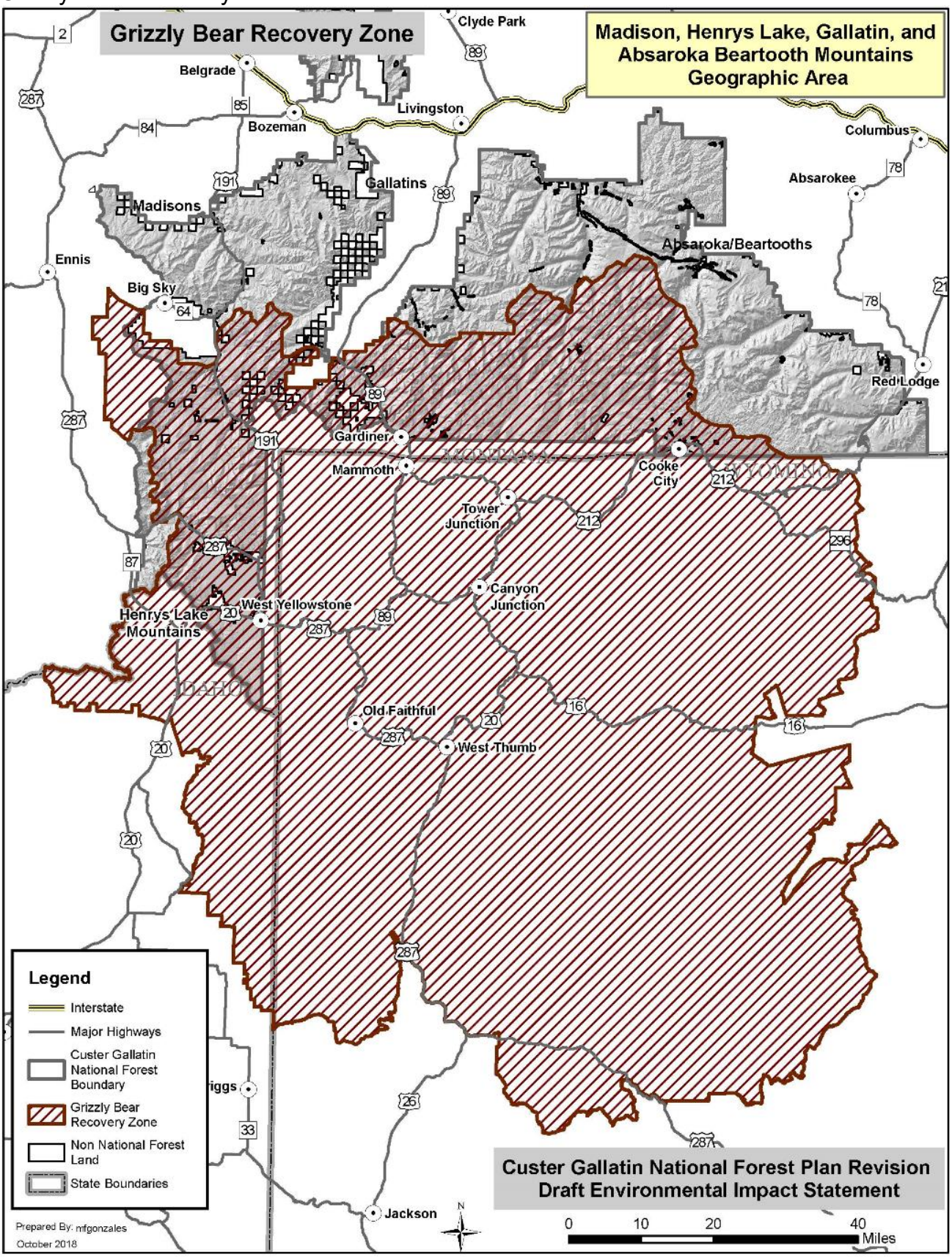
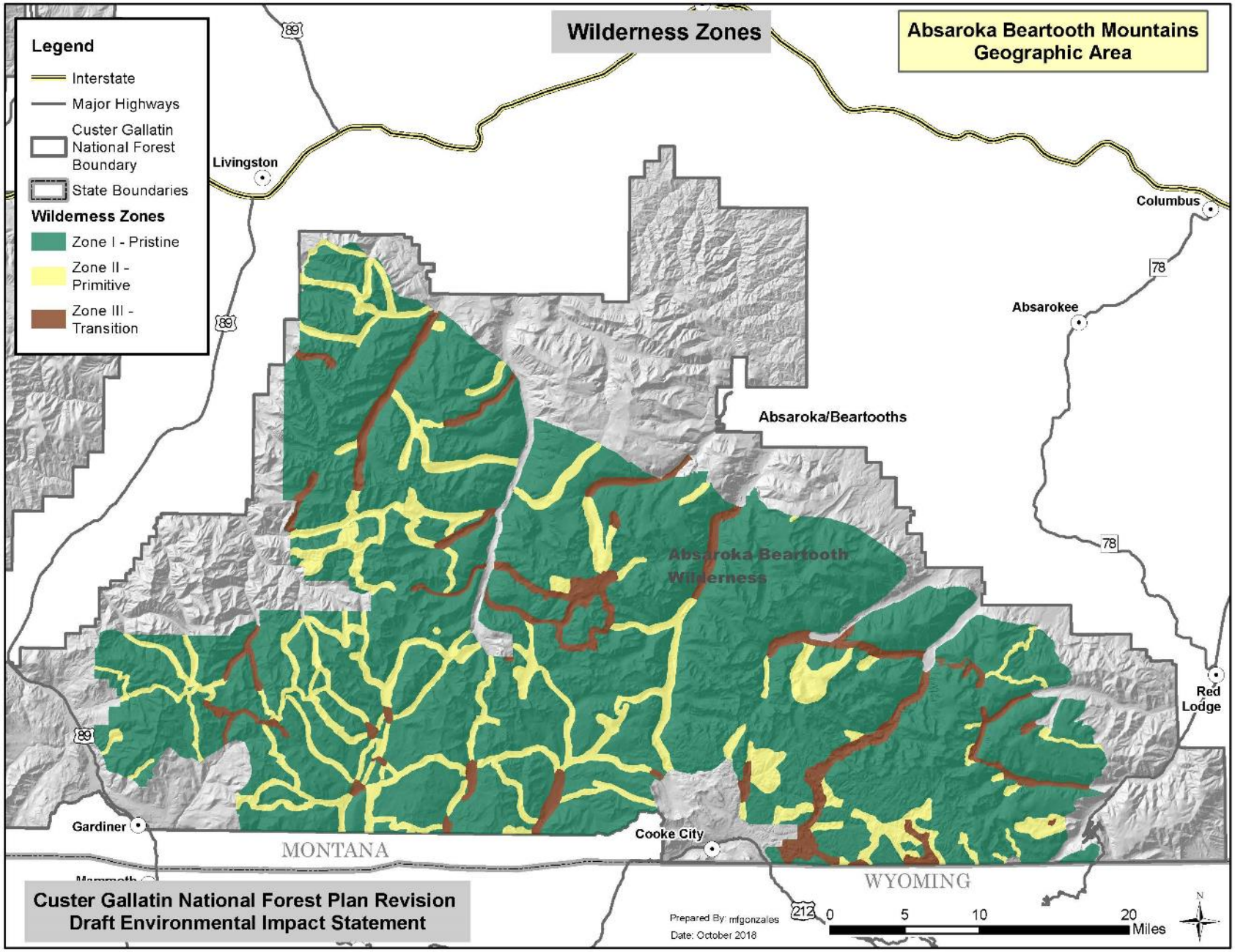
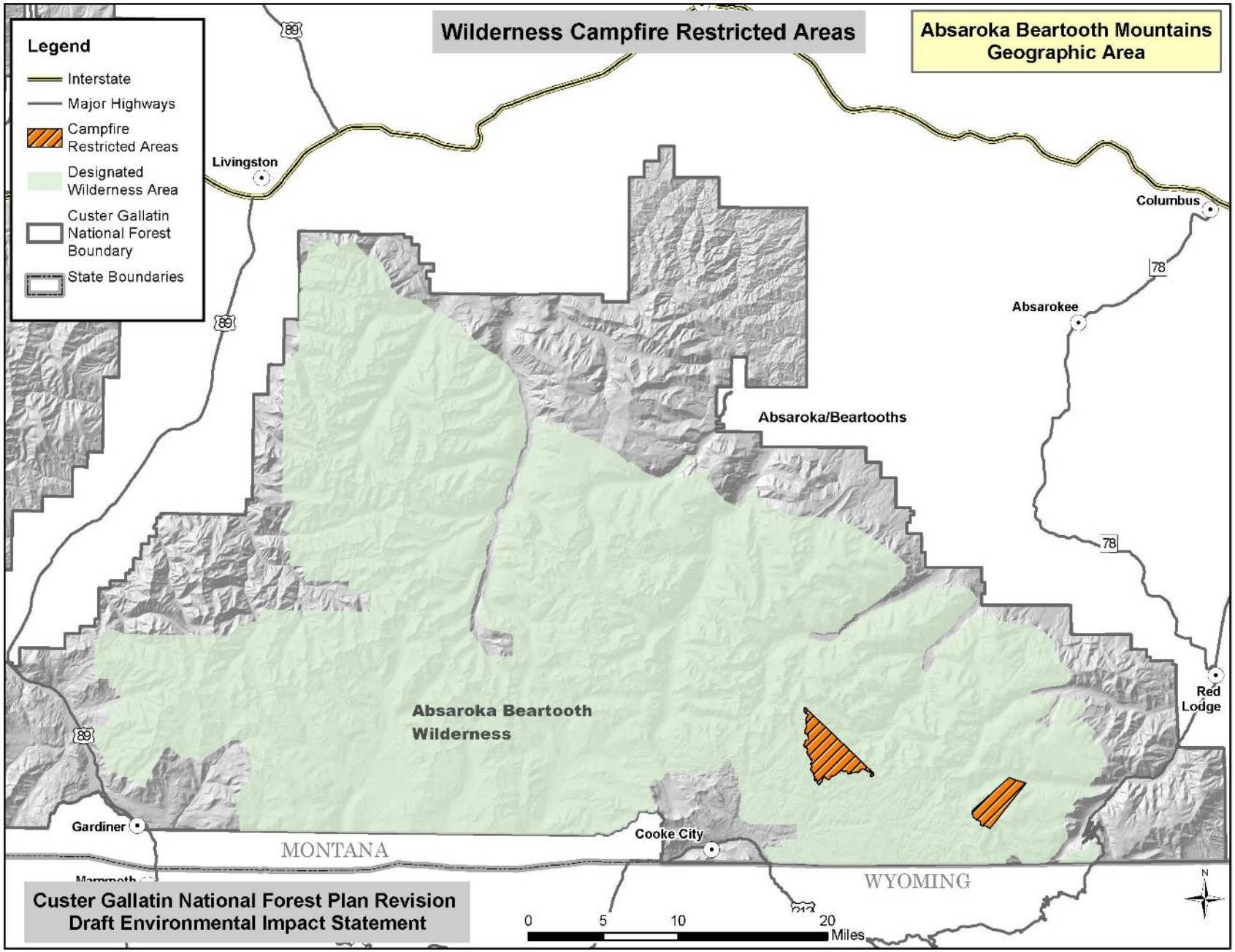
Grizzly Bear Recovery Zone



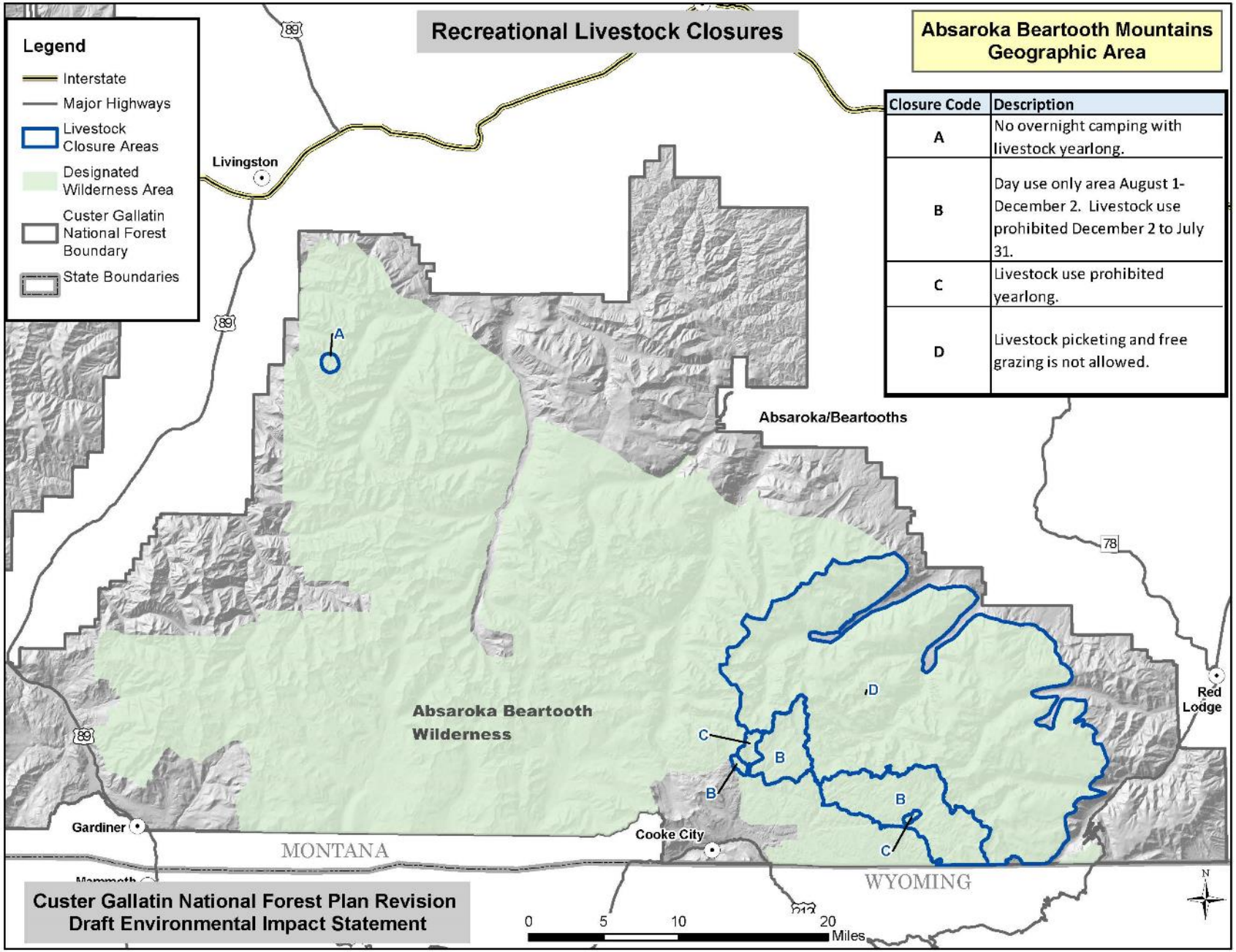
Wilderness Zones



Wilderness Campfire Restricted Areas

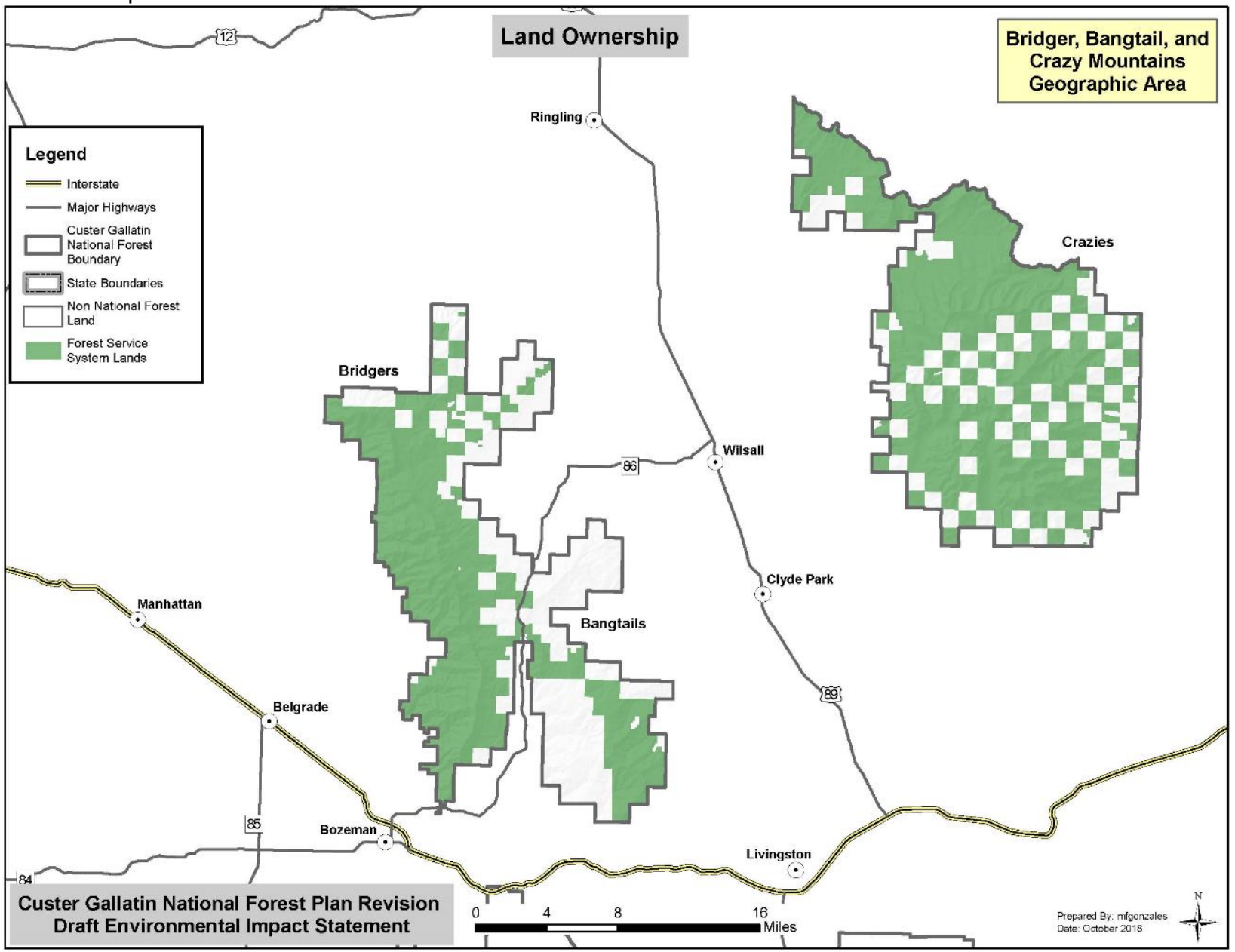


Wilderness Recreational Livestock Closures

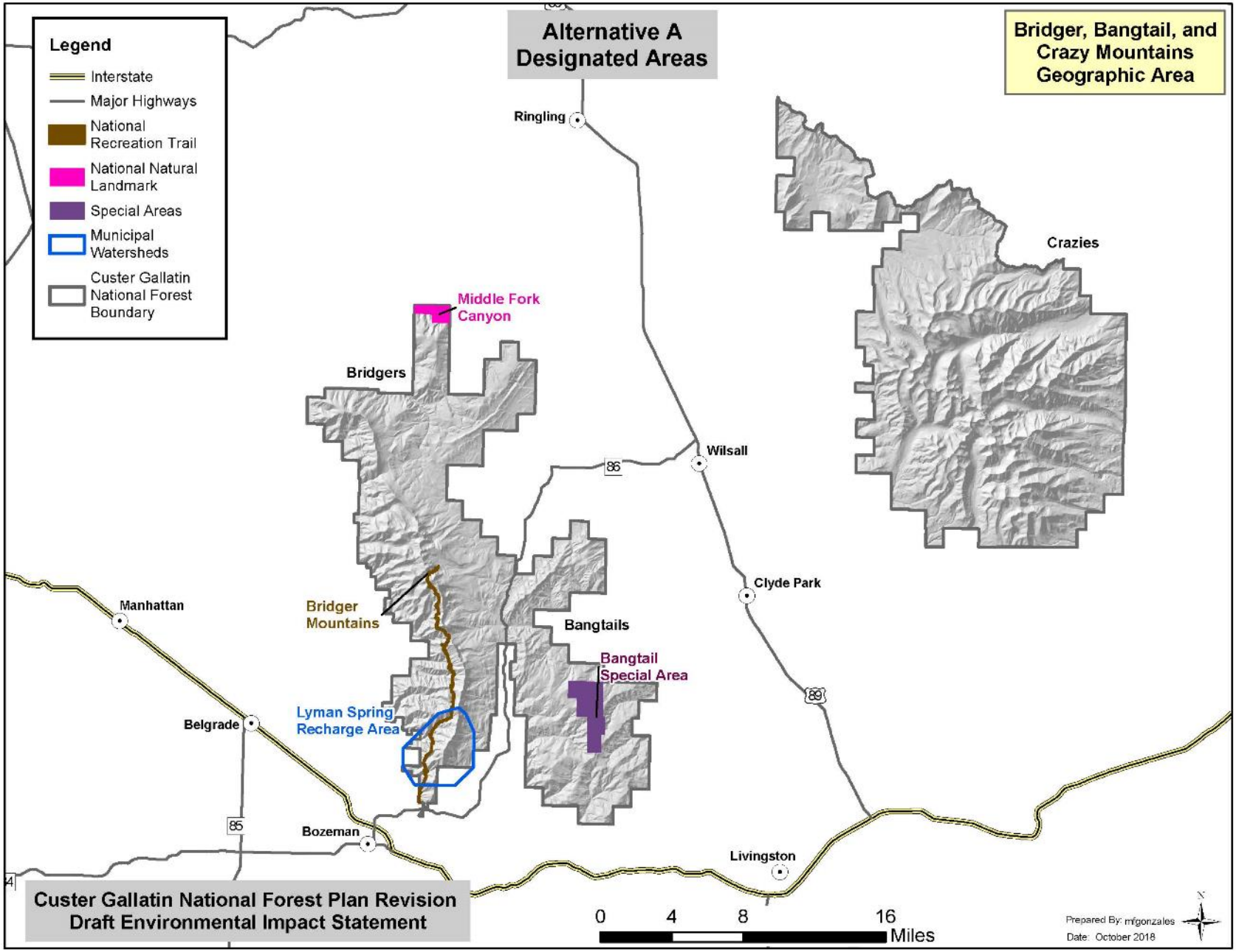


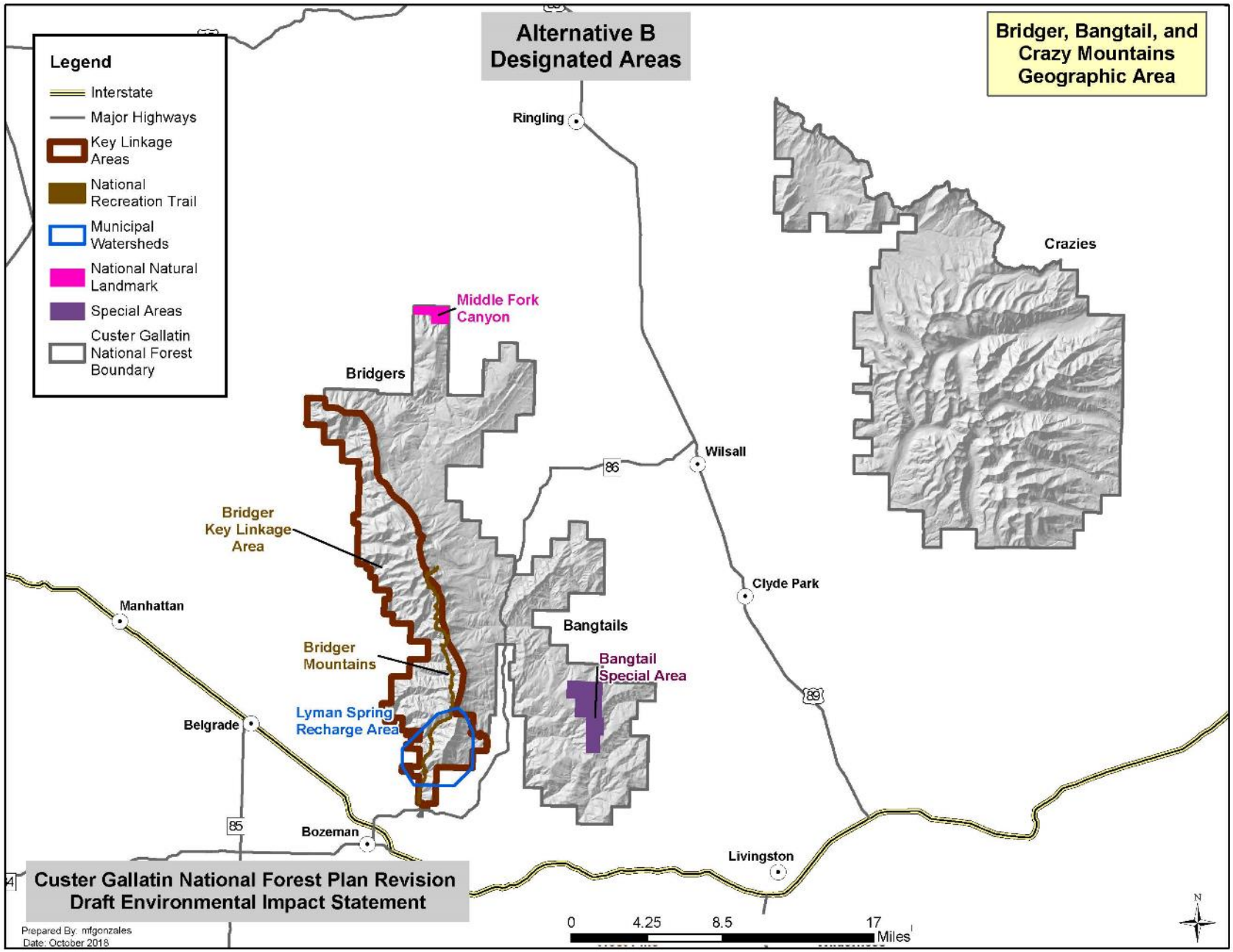
Geographic Area Maps – Bridger, Bangtail, and Crazy Mountains Geographic Area

Land Ownership



Designated Areas

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Bridger, Bangtail, and
Crazy Mountains
Geographic Area
Legend
Interstate
Major Highways
Key Linkage Areas
National Recreation Trail
Municipal Watersheds
National Natural Landmark
Special Areas
Custer Gallatin National Forest Boundary
Ringling
Crazies
Middle Fork Canyon
Bridgers
Wilsall
86
Bridger Key Linkage Area
Clyde Park
Manhattan
Bangtails
Bridger Mountains
Bangtail Special Area
89
Lyman Spring Recharge Area
Belgrade
85
Bozeman
Livingston
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Prepared By: mfgonzales
Date: October 2018
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Miles
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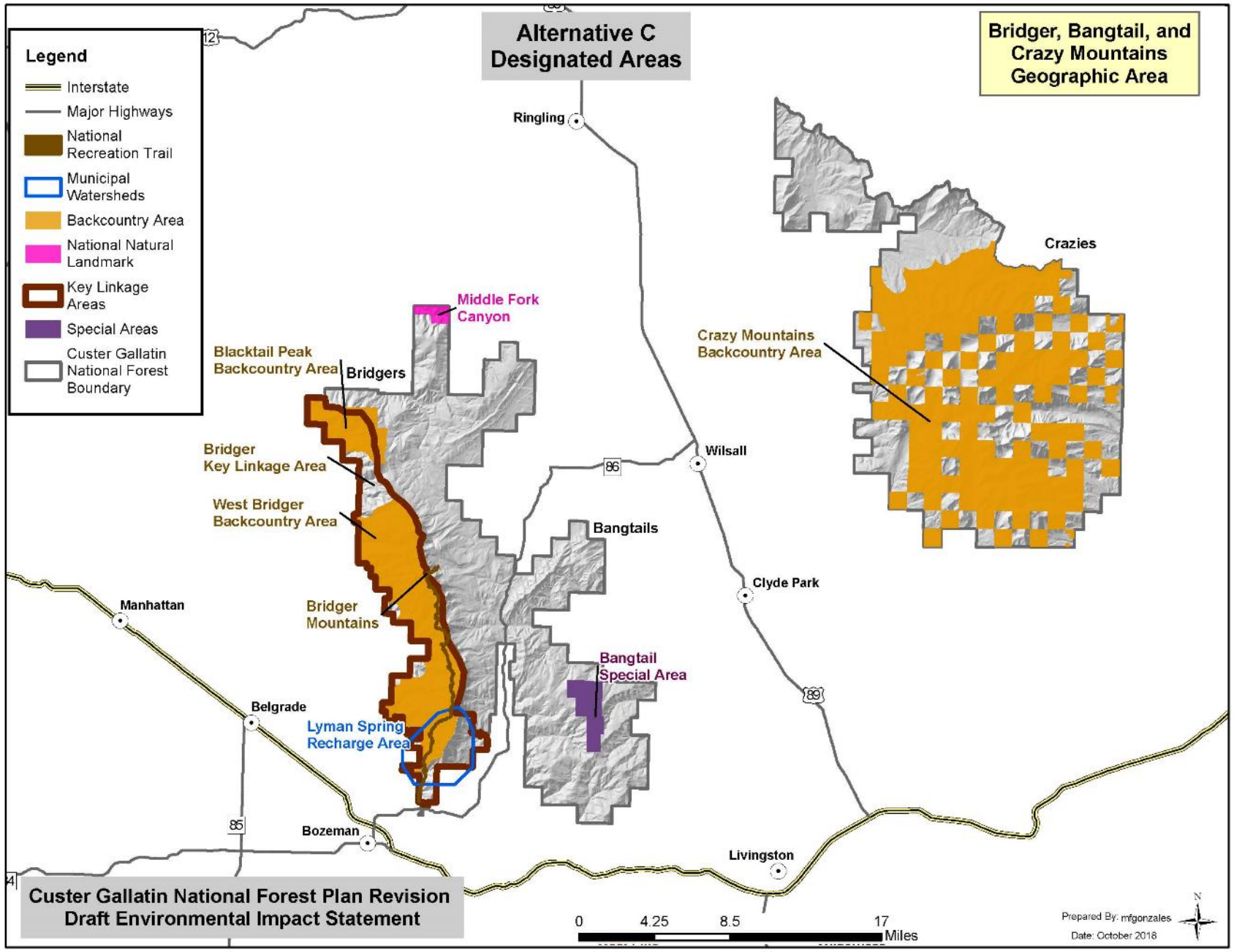
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Backcountry Area
National Natural Landmark
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Crazies
Middle Fork Canyon
Blacktail Peak Backcountry Area
Bridgers
Crazy Mountains Backcountry Area
Bridger Key Linkage Area
Wilsall
West Bridger Backcountry Area
Bangtails
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Manhattan
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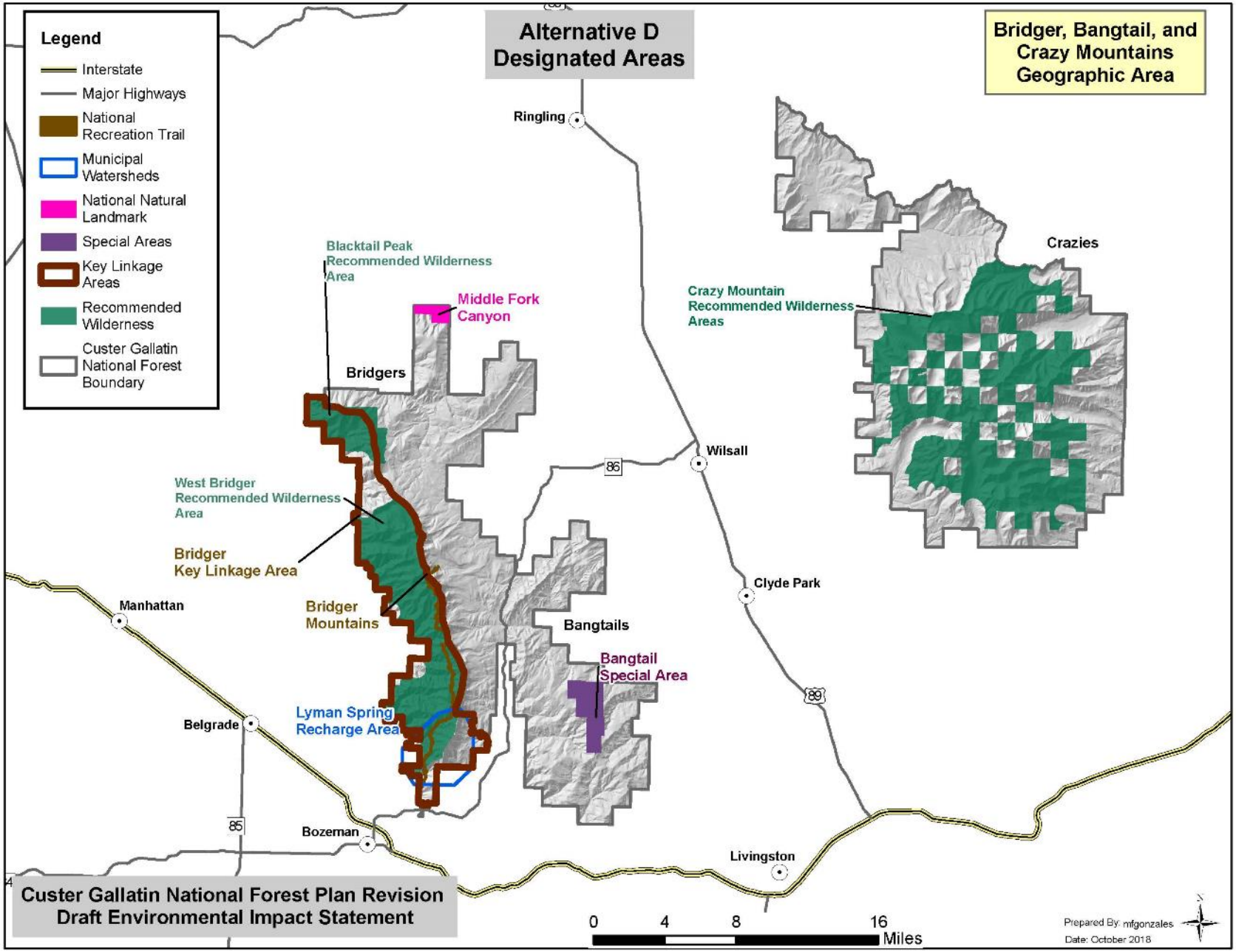
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Recommended Wilderness
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Ringling
Blacktail Peak Recommended Wilderness Area
Middle Fork Canyon
Bridgers
Crazies
Crazy Mountain Recommended Wilderness Areas
Wilsall
86
West Bridger Recommended Wilderness Area
Bridger Key Linkage Area
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Manhattan
Bangtails
Bangtail Special Area
89
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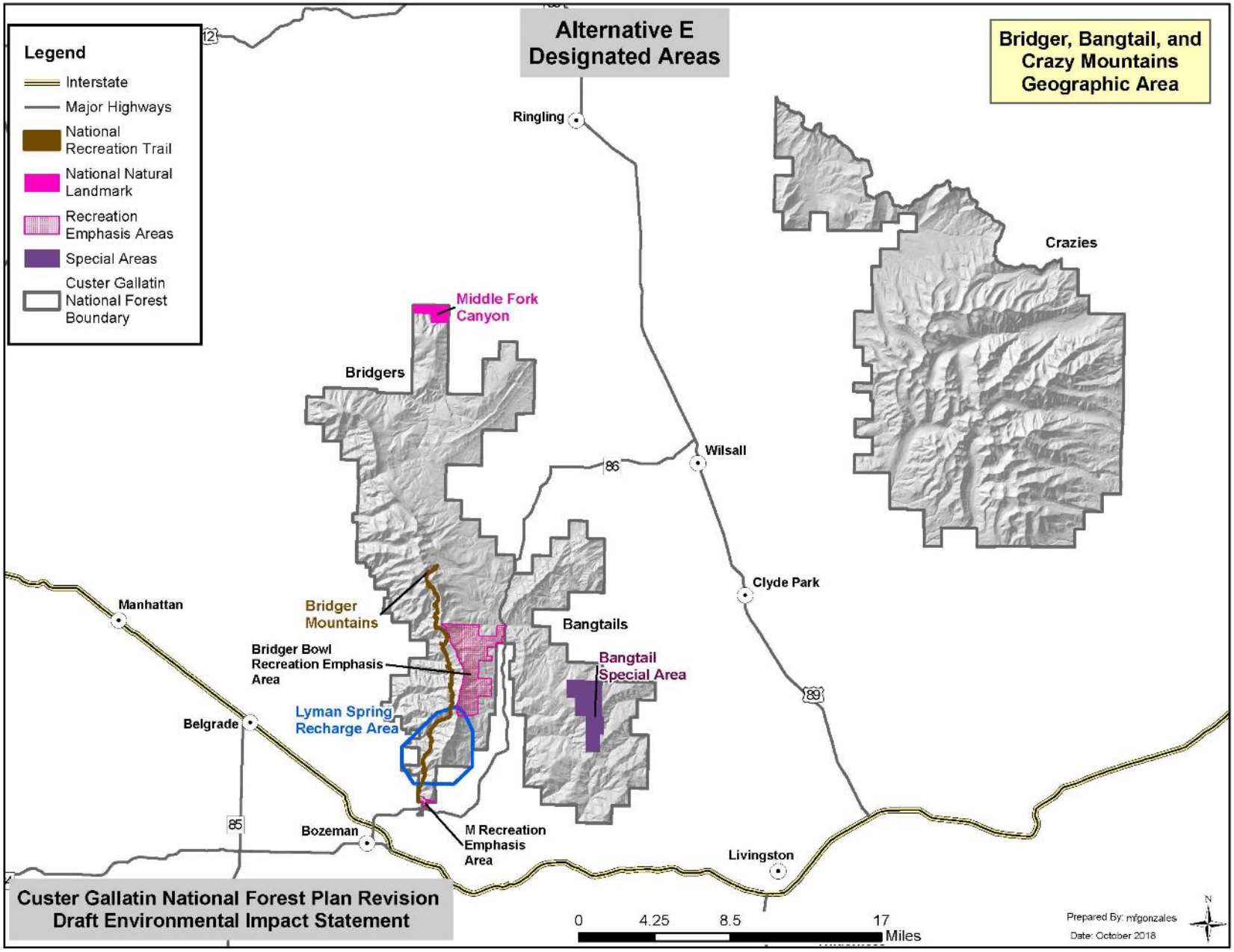
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Geographic Area
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National
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Landmark
Recreation
Emphasis Areas
Special Areas
Custer Gallatin
National Forest
Boundary
Ringling
Crazies
Middle Fork
Canyon
Bridgers
Wilsall
86
Clyde Park
Manhattan
Bridger
Mountains
Bangtails
Bridger Bowl
Recreation Emphasis
Area
Bangtail
Special Area
89
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Bozeman
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Area
Livingston
Custer Gallatin National Forest Plan Revision
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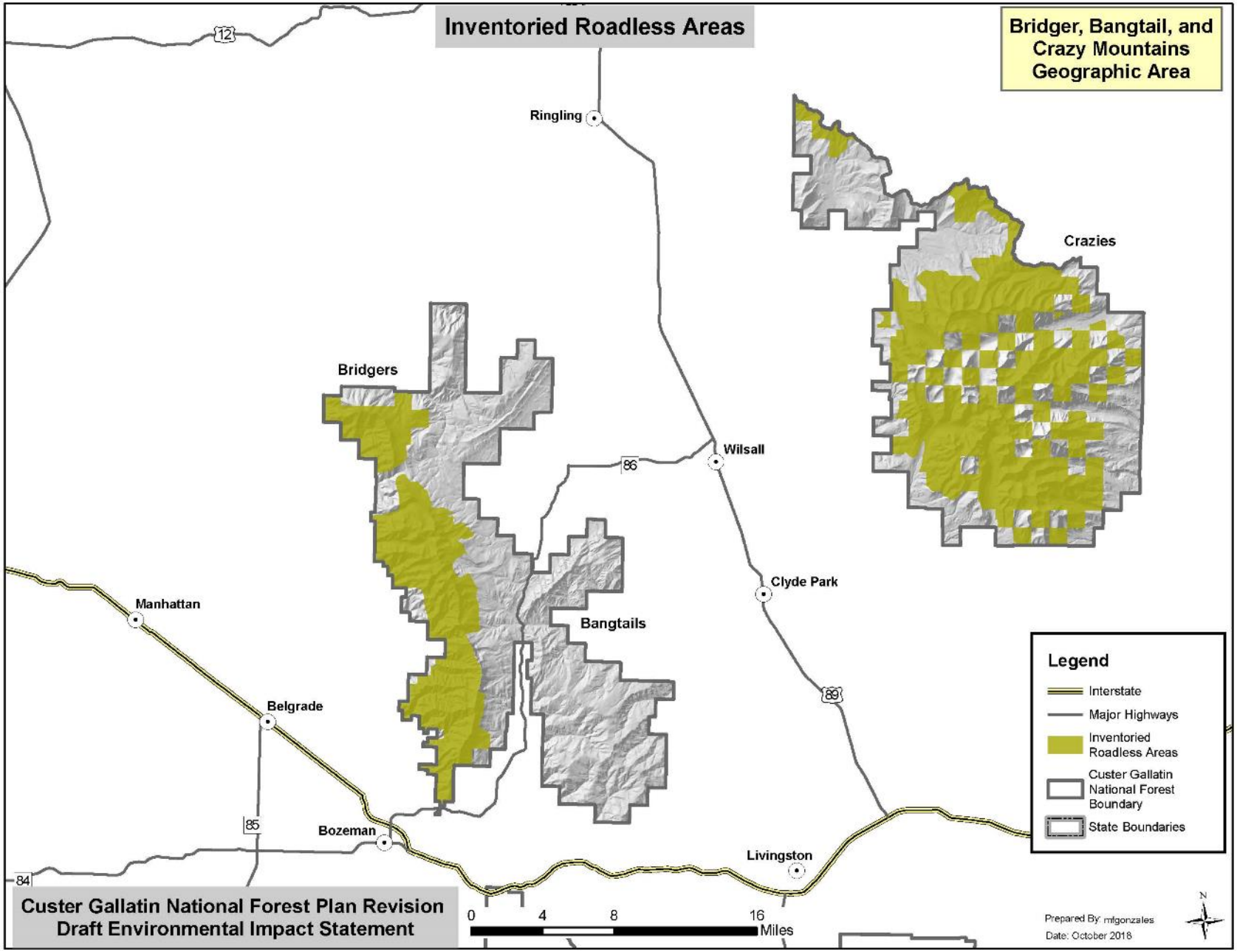
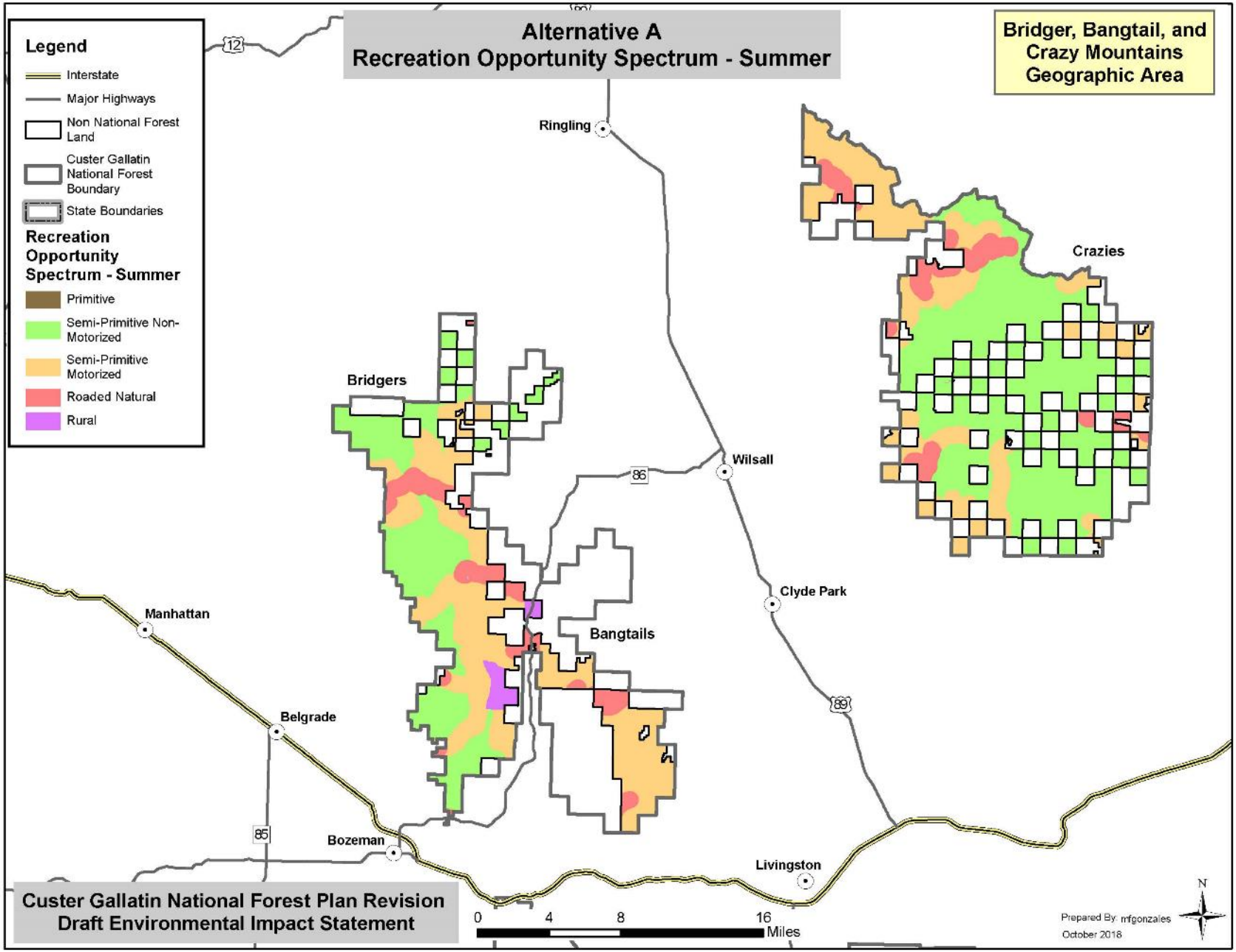
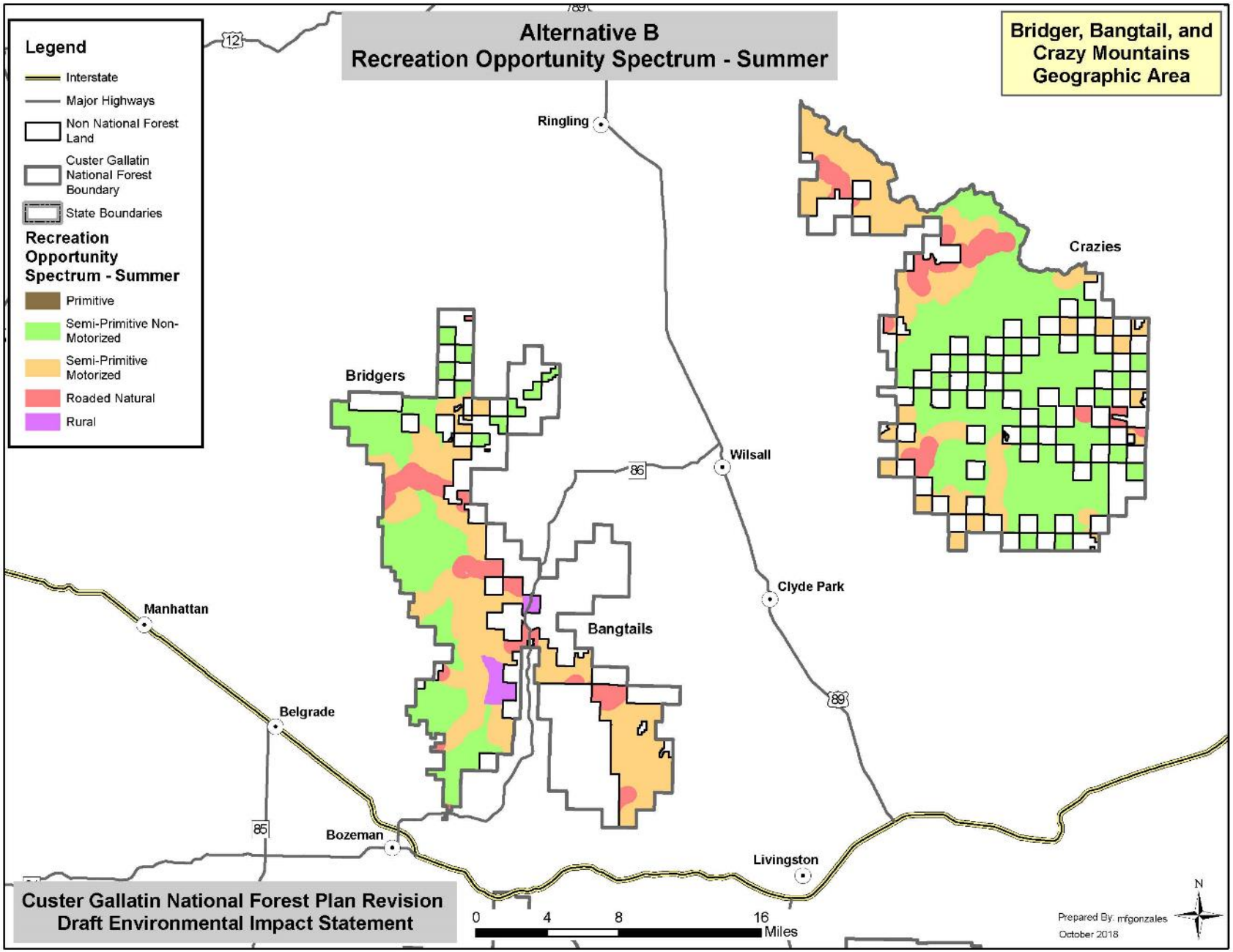
Inventoried Roadless Areas



Recreation Opportunity Spectrum – Summer

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State Boundaries
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Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
Ringling
Crazies
Bridgers
Wilsall
Clyde Park
Manhattan
Bangtails
Belgrade
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0 4 8 16 Miles
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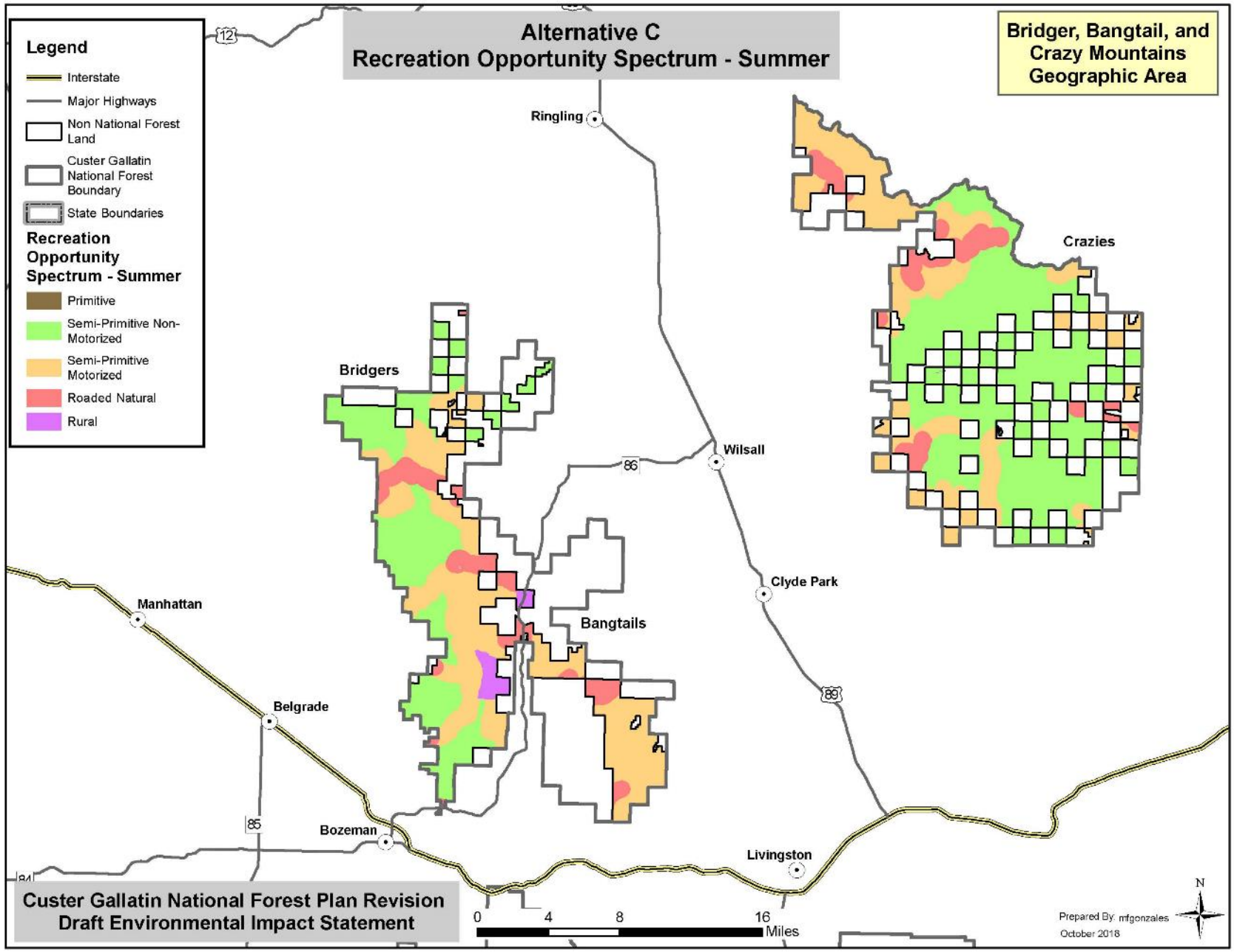
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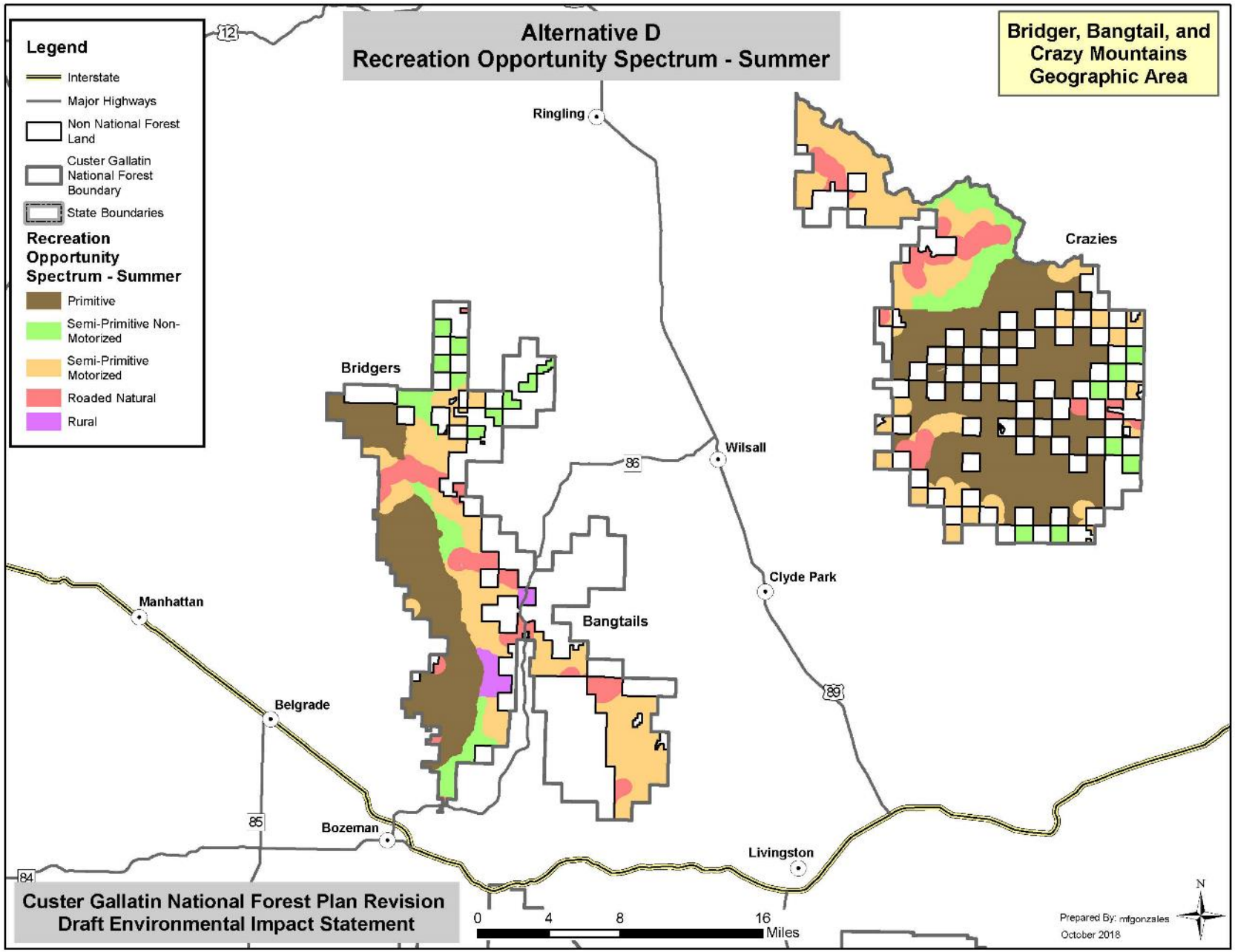
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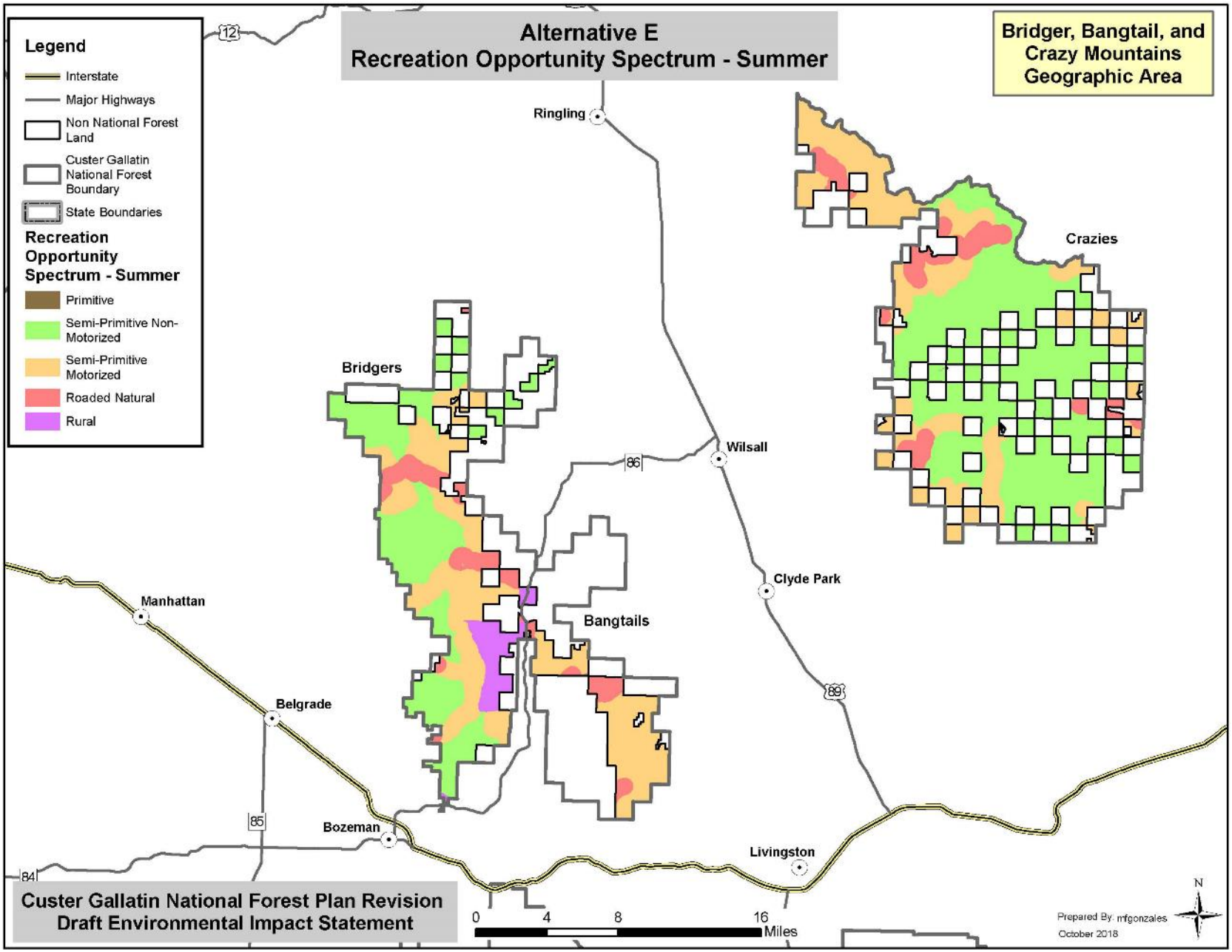
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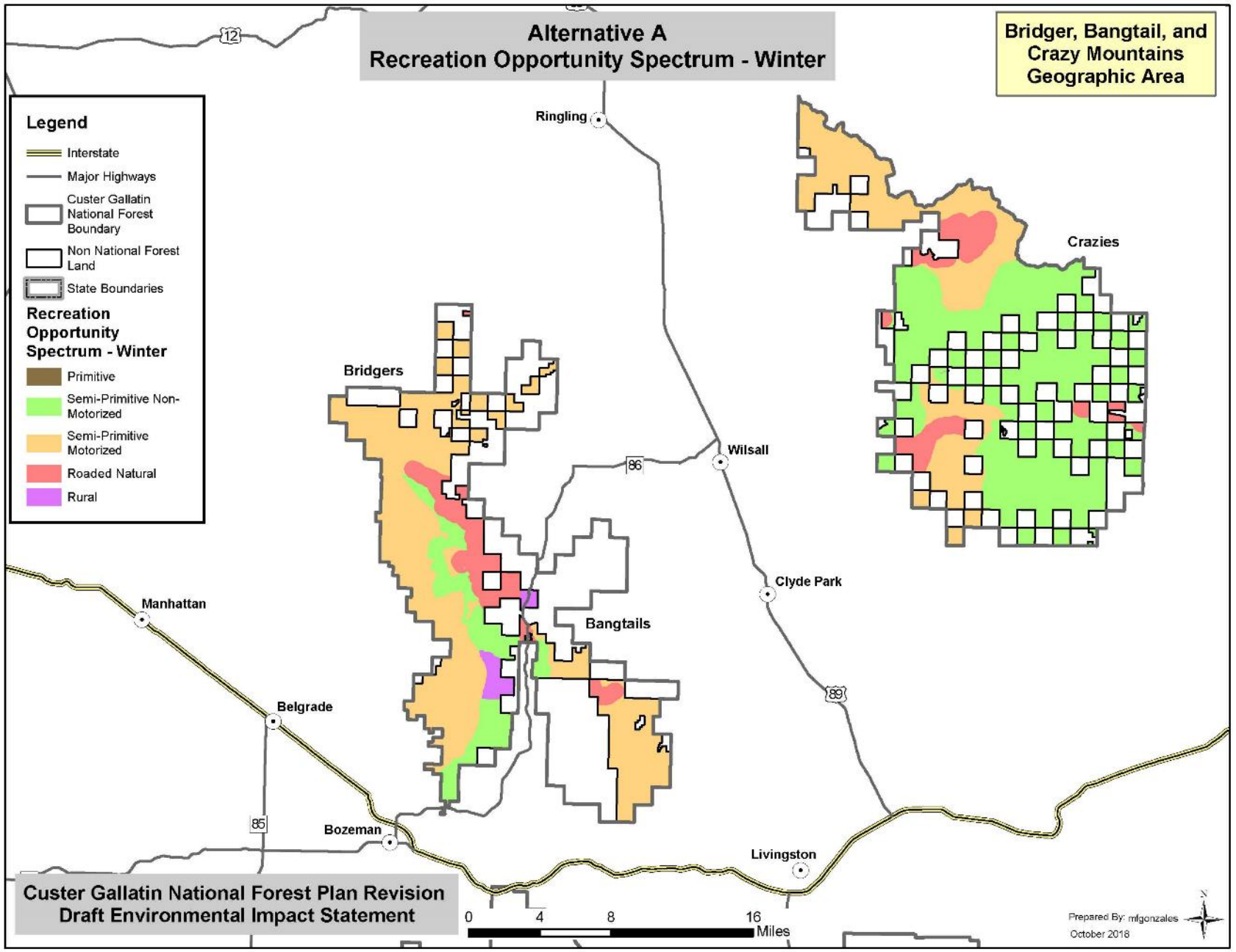
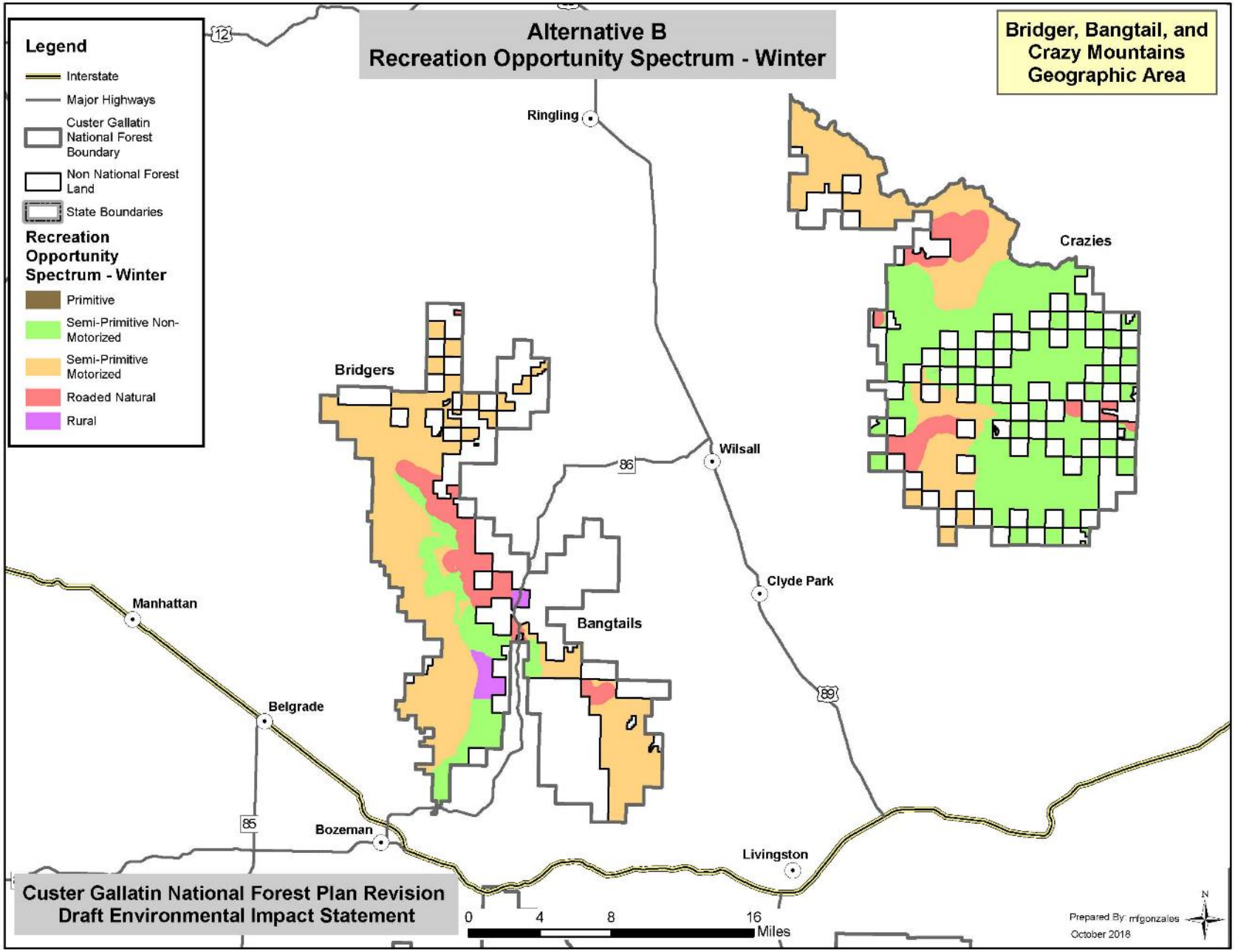
Recreation Opportunity Spectrum – Winter

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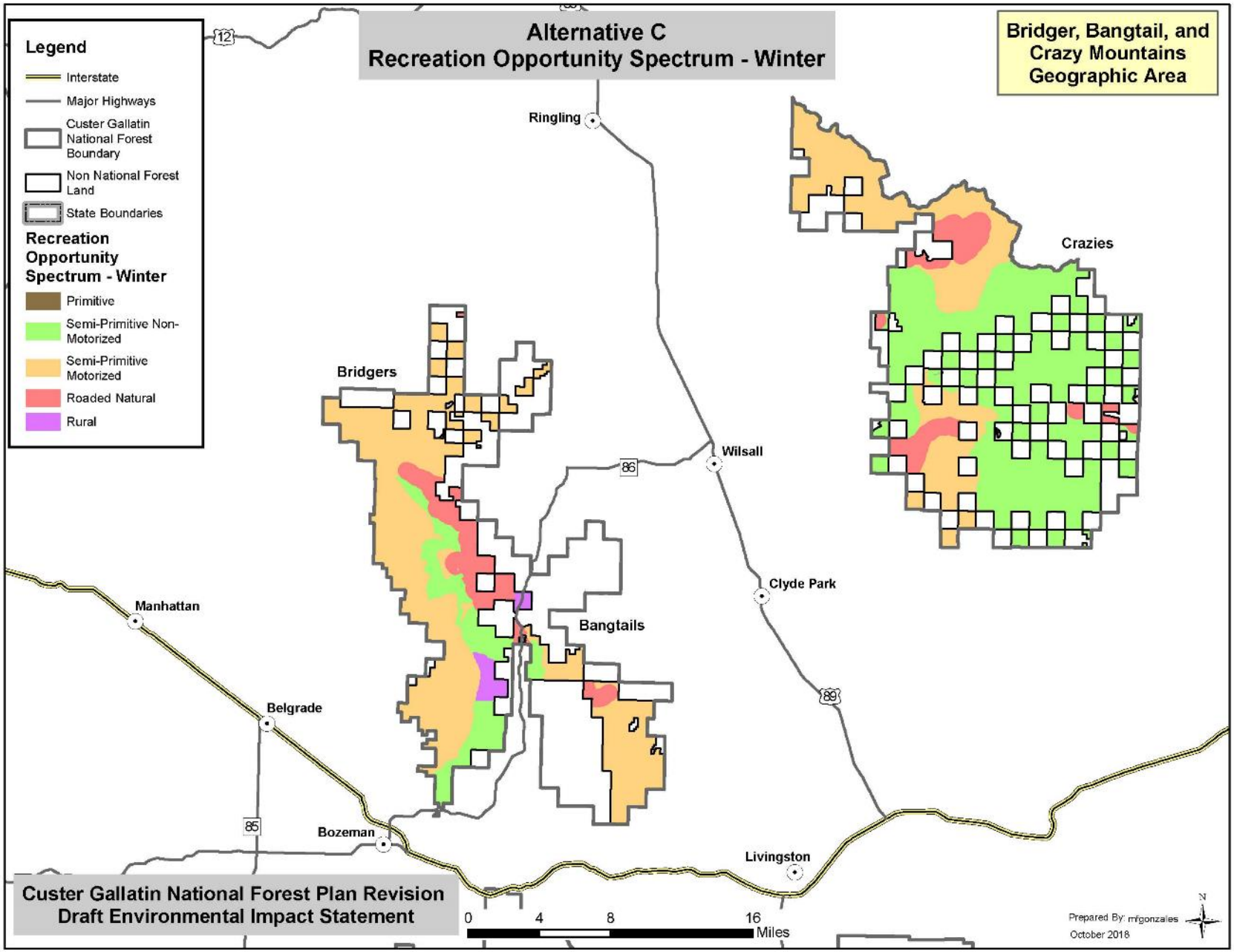
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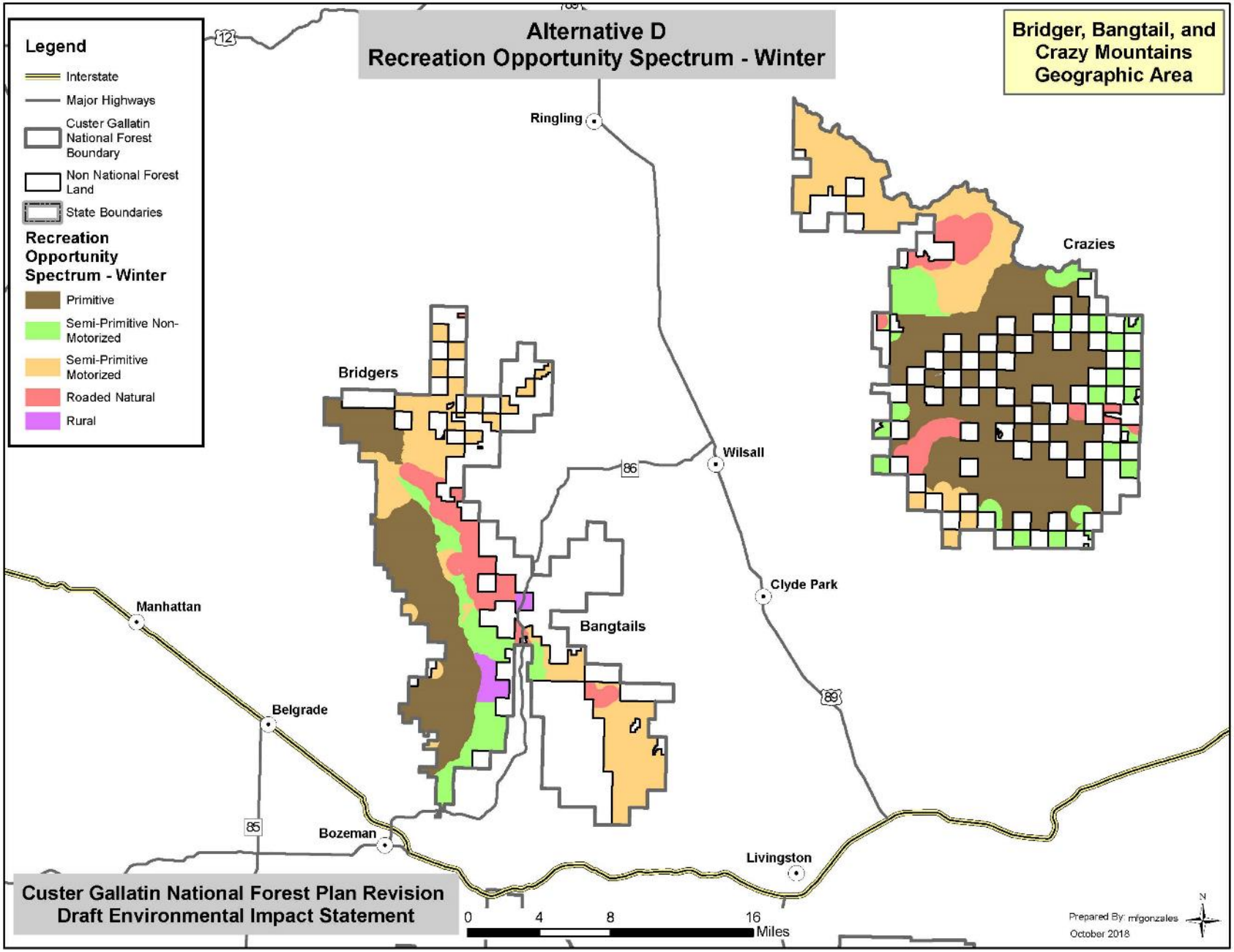
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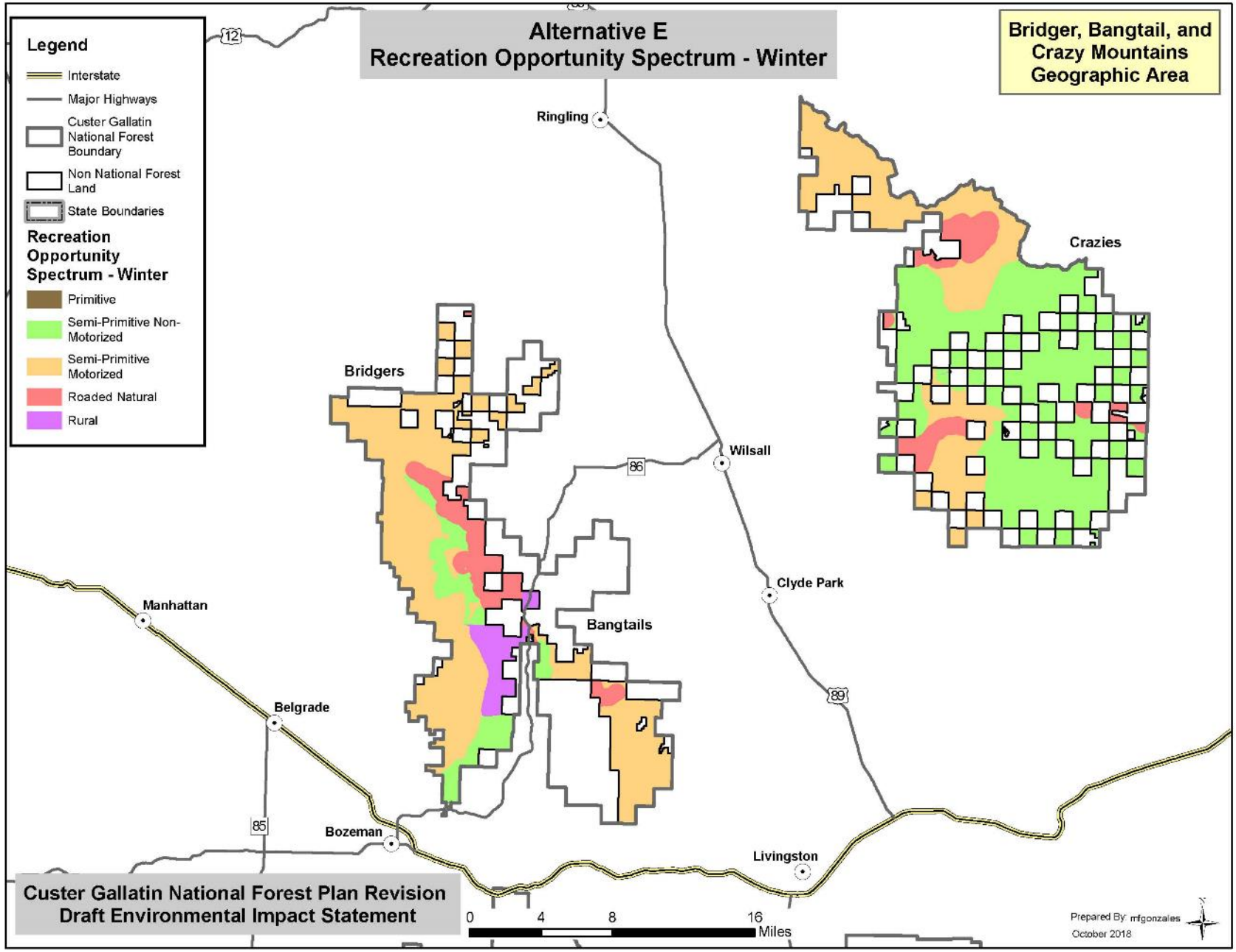
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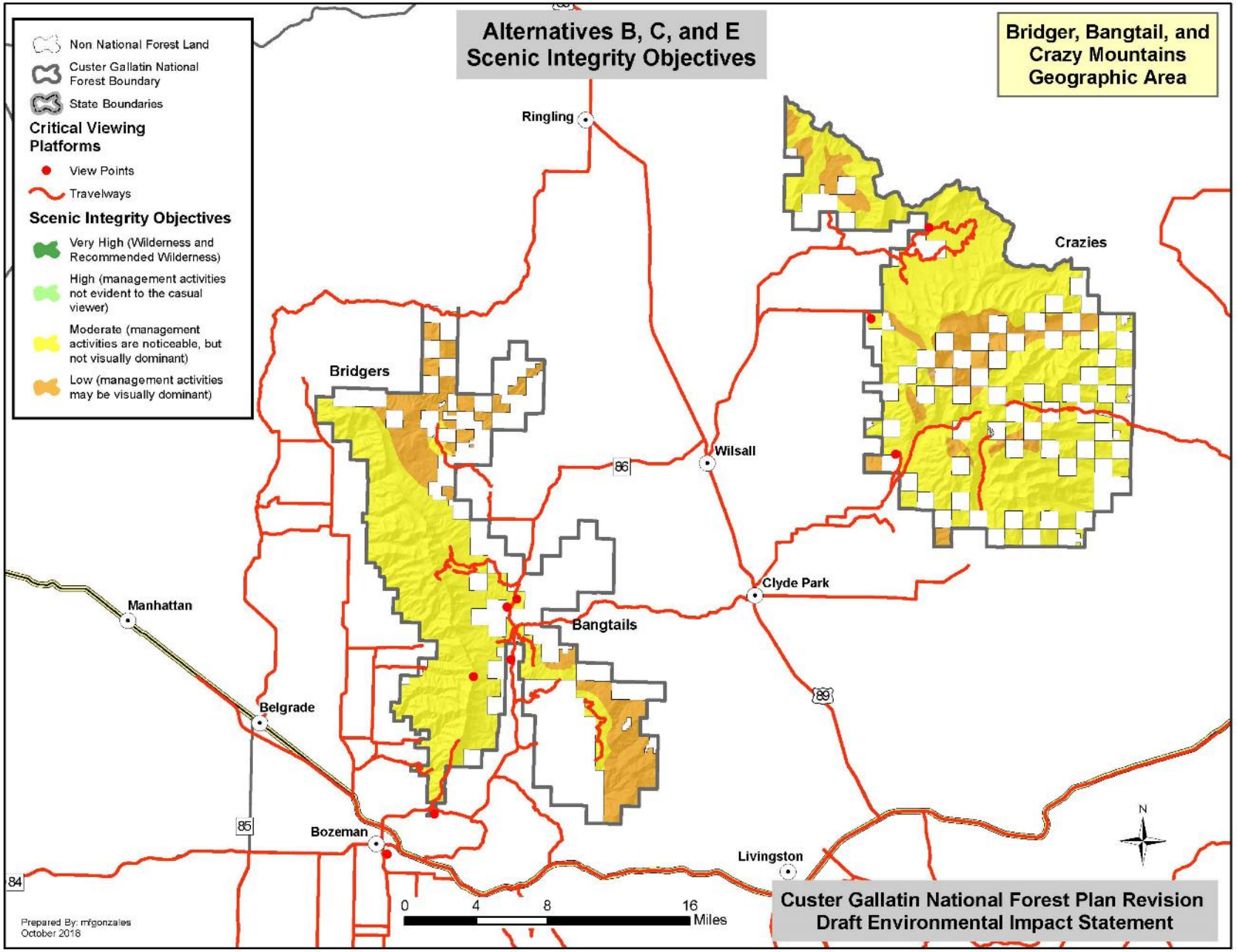
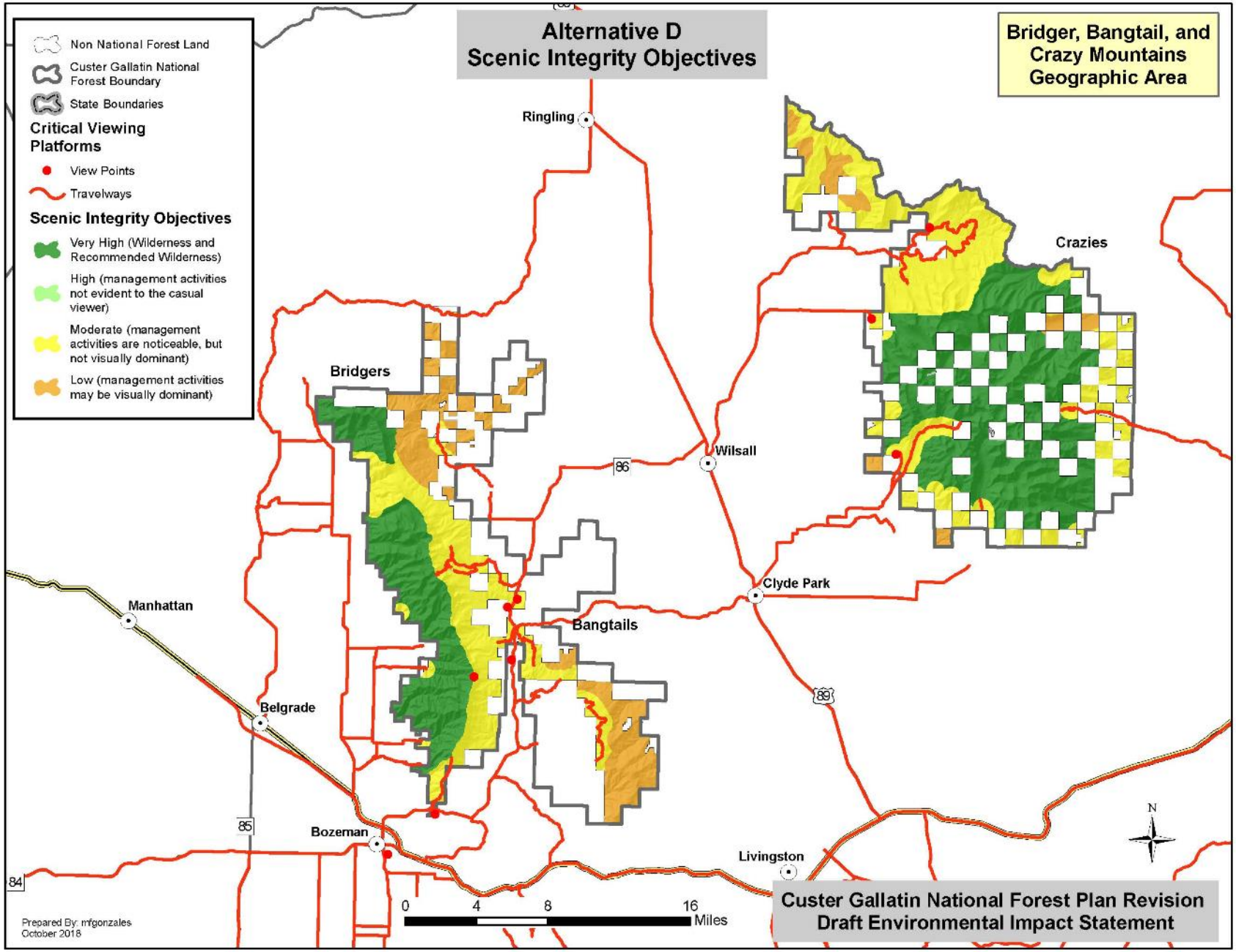
Scenic Integrity Objectives

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Very High (Wilderness and Recommended Wilderness)
High (management activities not evident to the casual viewer)
Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
Ringling
Crazies
Bridgers
Wilsall
86
Clyde Park
Manhattan
Bangtails
Belgrade
89
85
Bozeman
Livingston
84
N
0
4
8
16
Miles
Prepared By: mfgonzales
October 2018
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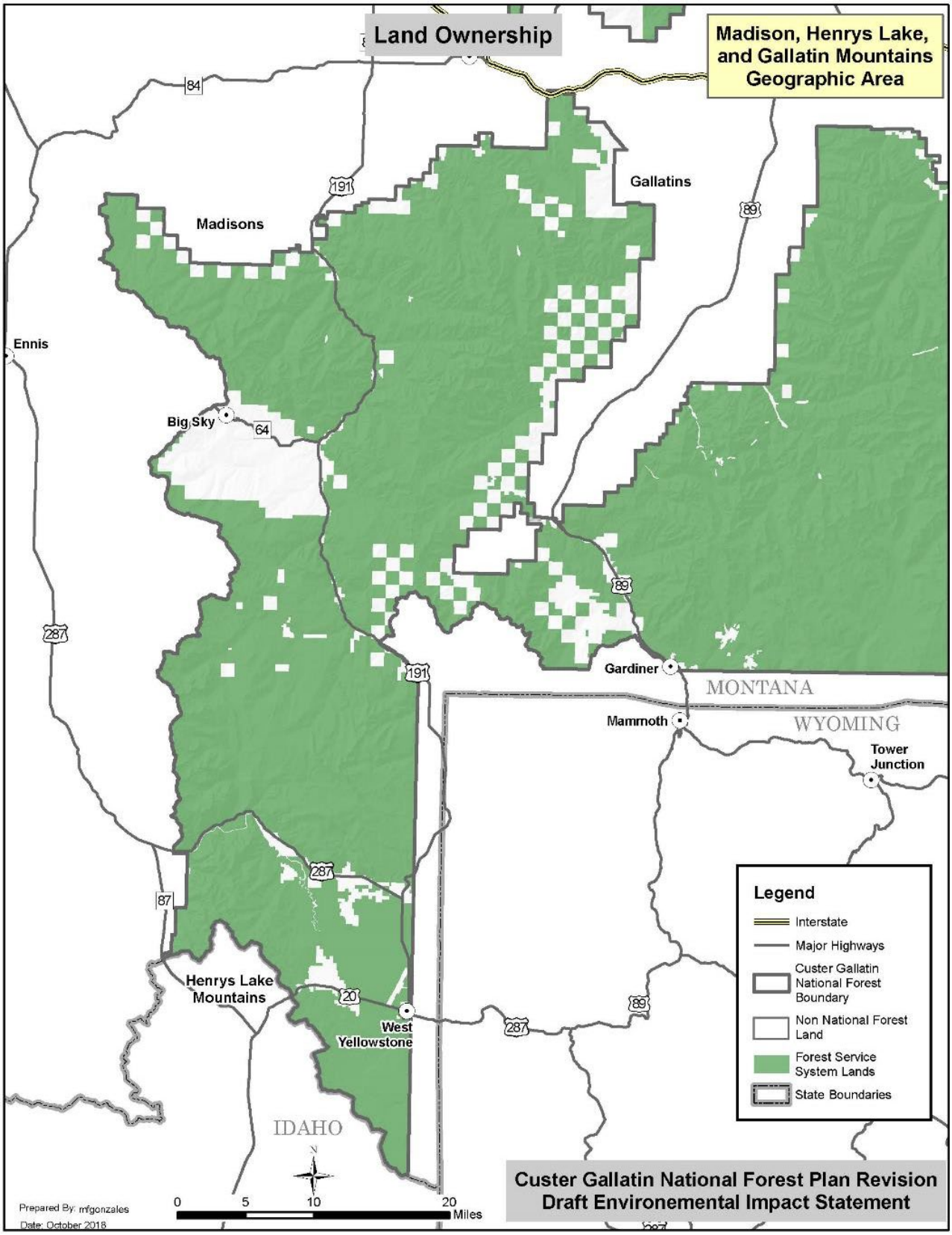
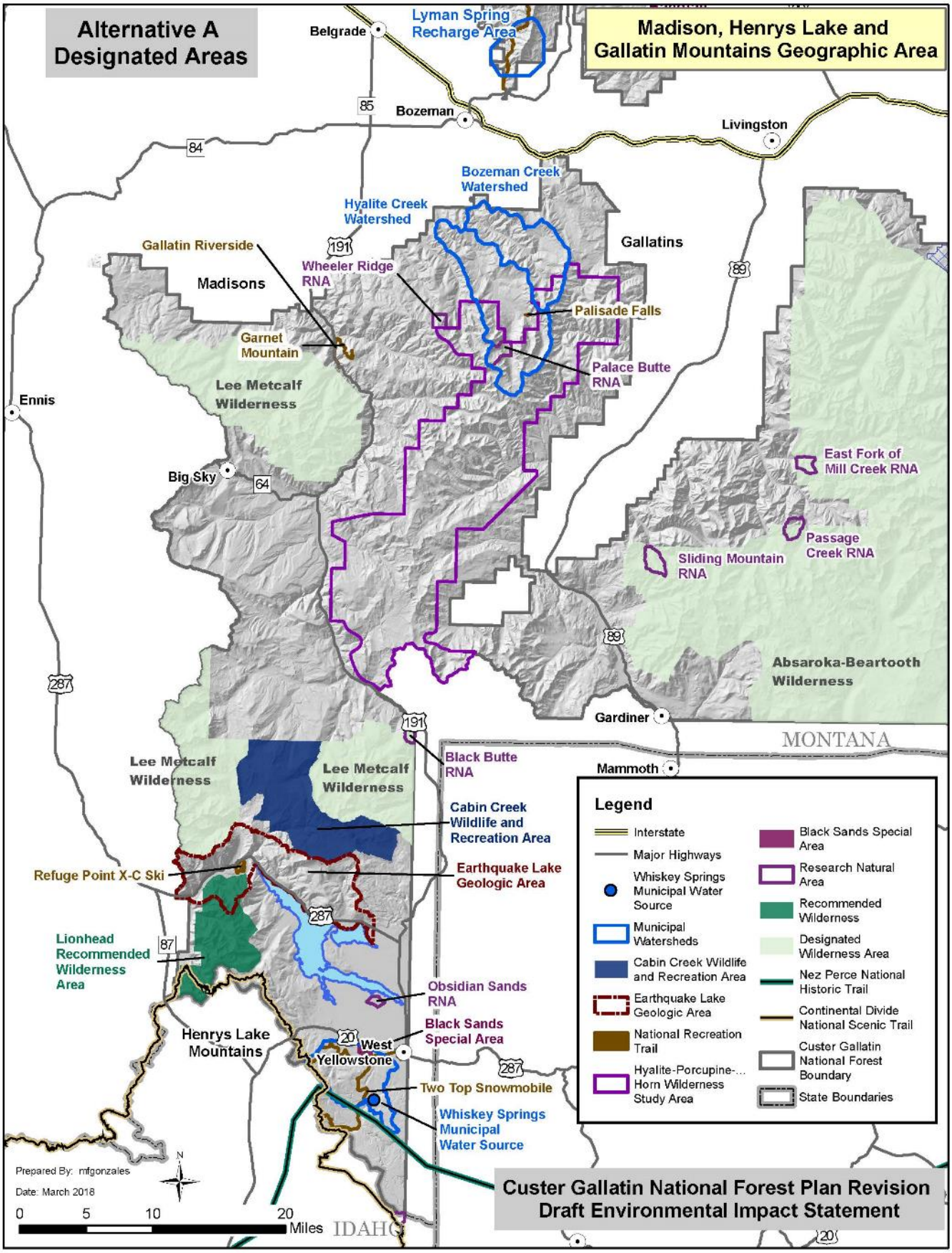
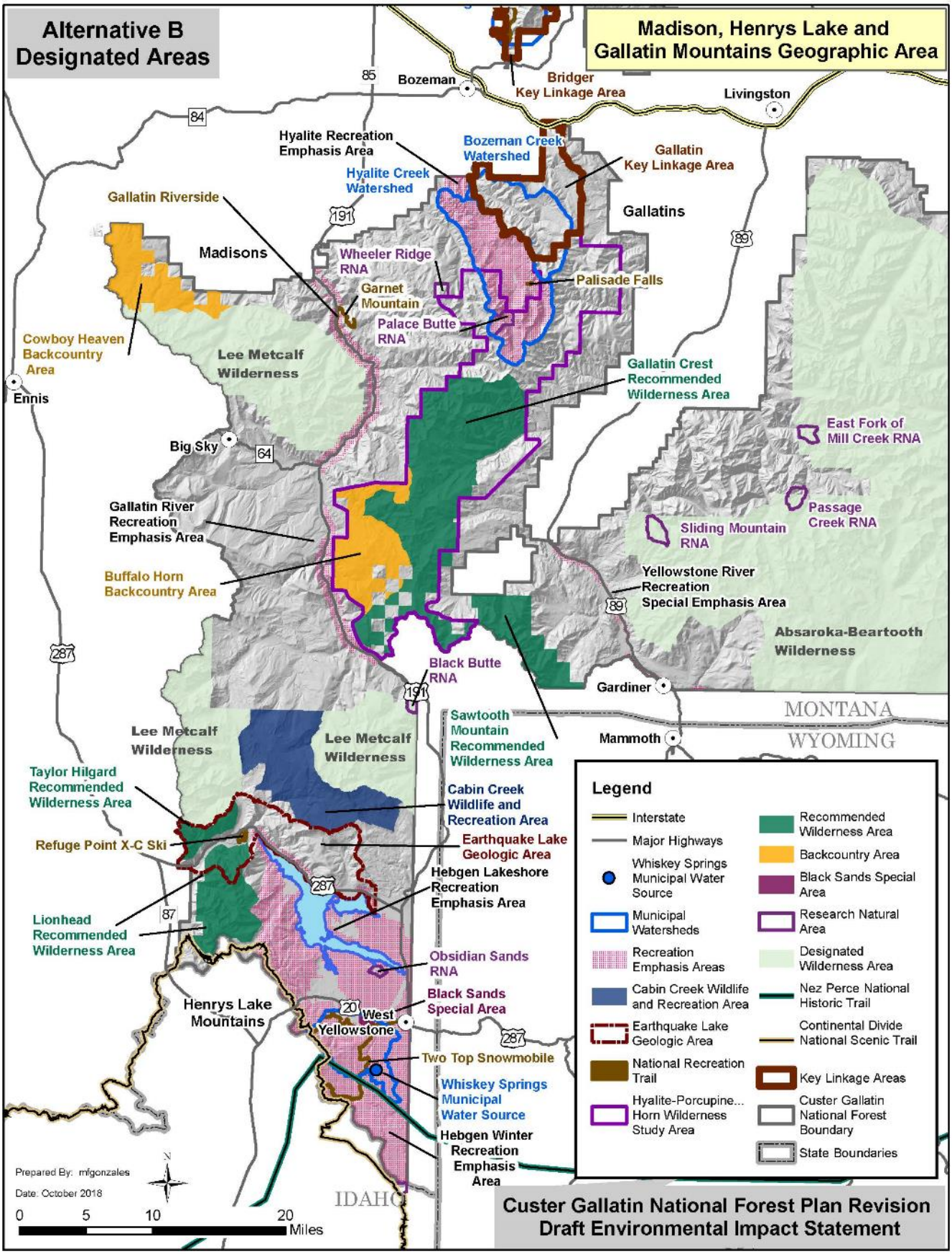
Geographic Area Maps – Madison, Henrys Lake, and Gallatin Mountains Geographic Area

Land Ownership



Designated Areas

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Designated Areas
Madison, Henrys Lake and
Gallatin Mountains Geographic Area
Bozeman
Bridger
Key Linkage Area
Livingston
Hyalite Recreation
Emphasis Area
Bozeman Creek
Watershed
Gallatin
Key Linkage Area
Hyalite Creek
Watershed
Gallatin Riverside
Gallatins
Madisons
Wheeler Ridge
RNA
Palisade Falls
Garnet
Mountain
Palace Butte
RNA
Cowboy Heaven
Backcountry
Area
Lee Metcalf
Wilderness
Gallatin Crest
Recommended
Wilderness Area
Ennis
East Fork of
Mill Creek RNA
Big Sky
Gallatin River
Recreation
Emphasis Area
Passage
Creek RNA
Sliding Mountain
RNA
Buffalo Horn
Backcountry Area
Yellowstone River
Recreation
Special Emphasis Area
Absaroka-Beartooth
Wilderness
Black Butte
RNA
Gardiner
MONTANA
WYOMING
Mammoth
Lee Metcalf
Wilderness
Lee Metcalf
Wilderness
Sawtooth
Mountain
Recommended
Wilderness Area
Taylor Hilgard
Recommended
Wilderness Area
Cabin Creek
Wildlife and
Recreation Area
Refuge Point X-C Ski
Earthquake Lake
Geologic Area
Hebgen Lakeshore
Recreation
Emphasis Area
Lionhead
Recommended
Wilderness Area
Obsidian Sands
RNA
Black Sands
Special Area
Henrys Lake
Mountains
West
Yellowstone
Two Top Snowmobile
Whiskey Springs
Municipal
Water Source
Hebgen Winter
Recreation
Emphasis
Area
IDAHO
Legend
Interstate
Major Highways
Whiskey Springs Municipal Water Source
Municipal Watersheds
Recreation Emphasis Areas
Cabin Creek Wildlife and Recreation Area
Earthquake Lake Geologic Area
National Recreation Trail
Hyalite-Porcupine... Horn Wilderness Study Area
Recommended Wilderness Area
Backcountry Area
Black Sands Special Area
Research Natural Area
Designated Wilderness Area
Nez Perce National Historic Trail
Continental Divide National Scenic Trail
Key Linkage Areas
Custer Gallatin National Forest Boundary
State Boundaries
Prepared By: mfgonzales
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Miles
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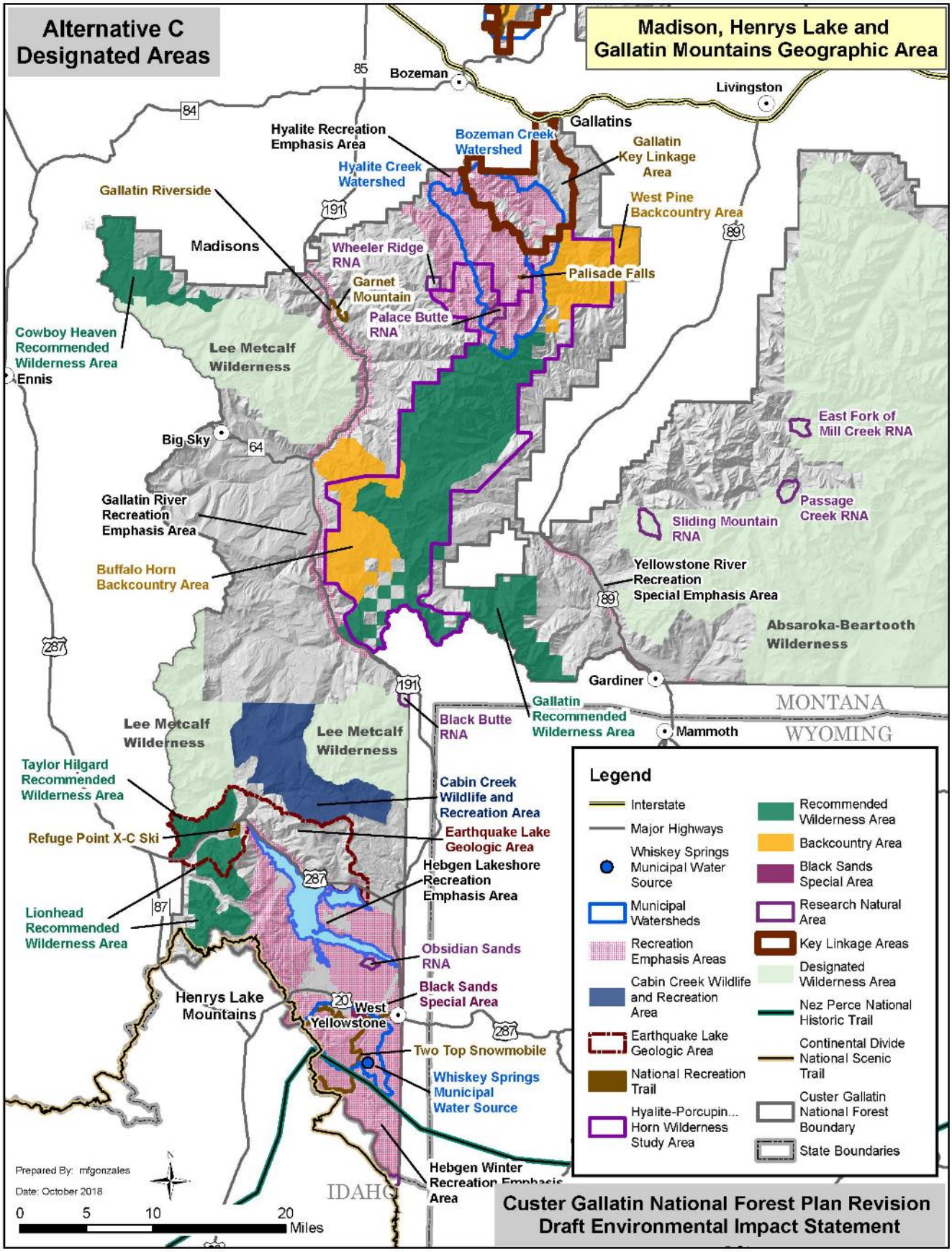
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Livingston
Gallatins
Hyalite Recreation
Emphasis Area
Bozeman Creek
Watershed
Hyalite Creek
Watershed
Gallatin
Key Linkage
Area
Gallatin Riverside
West Pine
Backcountry Area
Madisons
Wheeler Ridge
RNA
Garnet
Mountain
Palisade Falls
Palace Butte
RNA
Cowboy Heaven
Recommended
Wilderness Area
Ennis
Lee Metcalf
Wilderness
East Fork of
Mill Creek RNA
Big Sky
Gallatin River
Recreation
Emphasis Area
Passage
Creek RNA
Sliding Mountain
RNA
Buffalo Horn
Backcountry Area
Yellowstone River
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Absaroka-Beartooth
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Gardiner
MONTANA
WYOMING
Gallatin
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Wilderness Area
Black Butte
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Mammoth
Lee Metcalf
Wilderness
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Wilderness
Taylor Hilgard
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Whiskey Springs
Municipal Water
Source
Municipal
Watersheds
Recreation
Emphasis Areas
Cabin Creek Wildlife
and Recreation
Area
Earthquake Lake
Geologic Area
National Recreation
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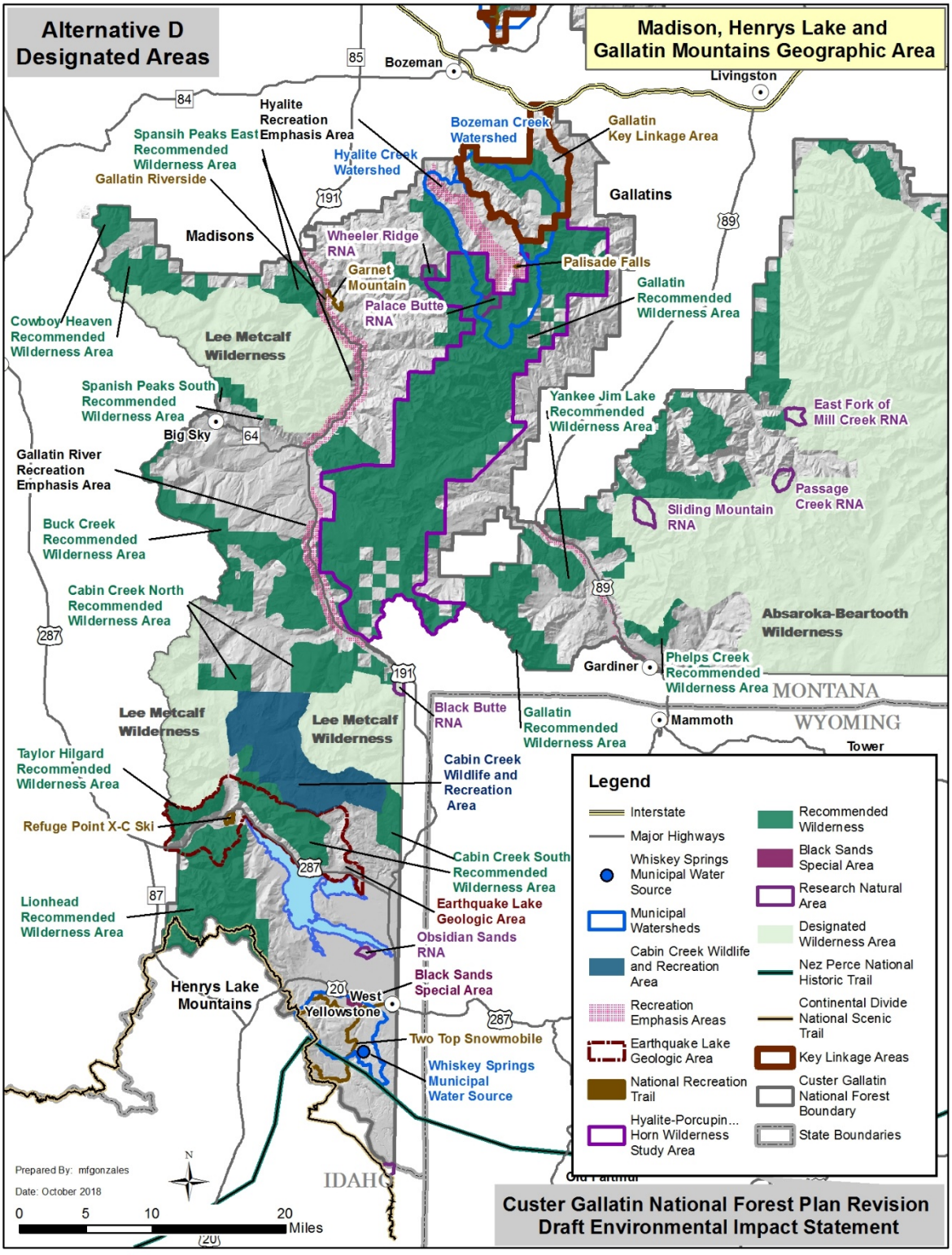
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Livingston
Hyalite
Recreation
Emphasis Area
Spansih Peaks East
Recommended
Wilderness Area
Gallatin Riverside
Hyalite Creek
Watershed
Bozeman Creek
Watershed
Gallatin
Key Linkage Area
Gallatins
Madisons
Wheeler Ridge
RNA
Garnet
Mountain
Palisade Falls
Palace Butte
RNA
Gallatin
Recommended
Wilderness Area
Cowboy Heaven
Recommended
Wilderness Area
Lee Metcalf
Wilderness
Spanish Peaks South
Recommended
Wilderness Area
Big Sky
Yankee Jim Lake
Recommended
Wilderness Area
East Fork of
Mill Creek RNA
Gallatin River
Recreation
Emphasis Area
Passage
Creek RNA
Sliding Mountain
RNA
Buck Creek
Recommended
Wilderness Area
Cabin Creek North
Recommended
Wilderness Area
Absaroka-Beartooth
Wilderness
Gardiner
Phelps Creek
Recommended
Wilderness Area
MONTANA
WYOMING
Mammoth
Tower
Black Butte
RNA
Gallatin
Recommended
Wilderness Area
Lee Metcalf
Wilderness
Lee Metcalf
Wilderness
Taylor Hilgard
Recommended
Wilderness Area
Cabin Creek
Wildlife and
Recreation
Area
Refuge Point X-C Ski
Cabin Creek South
Recommended
Wilderness Area
Earthquake Lake
Geologic Area
Lionhead
Recommended
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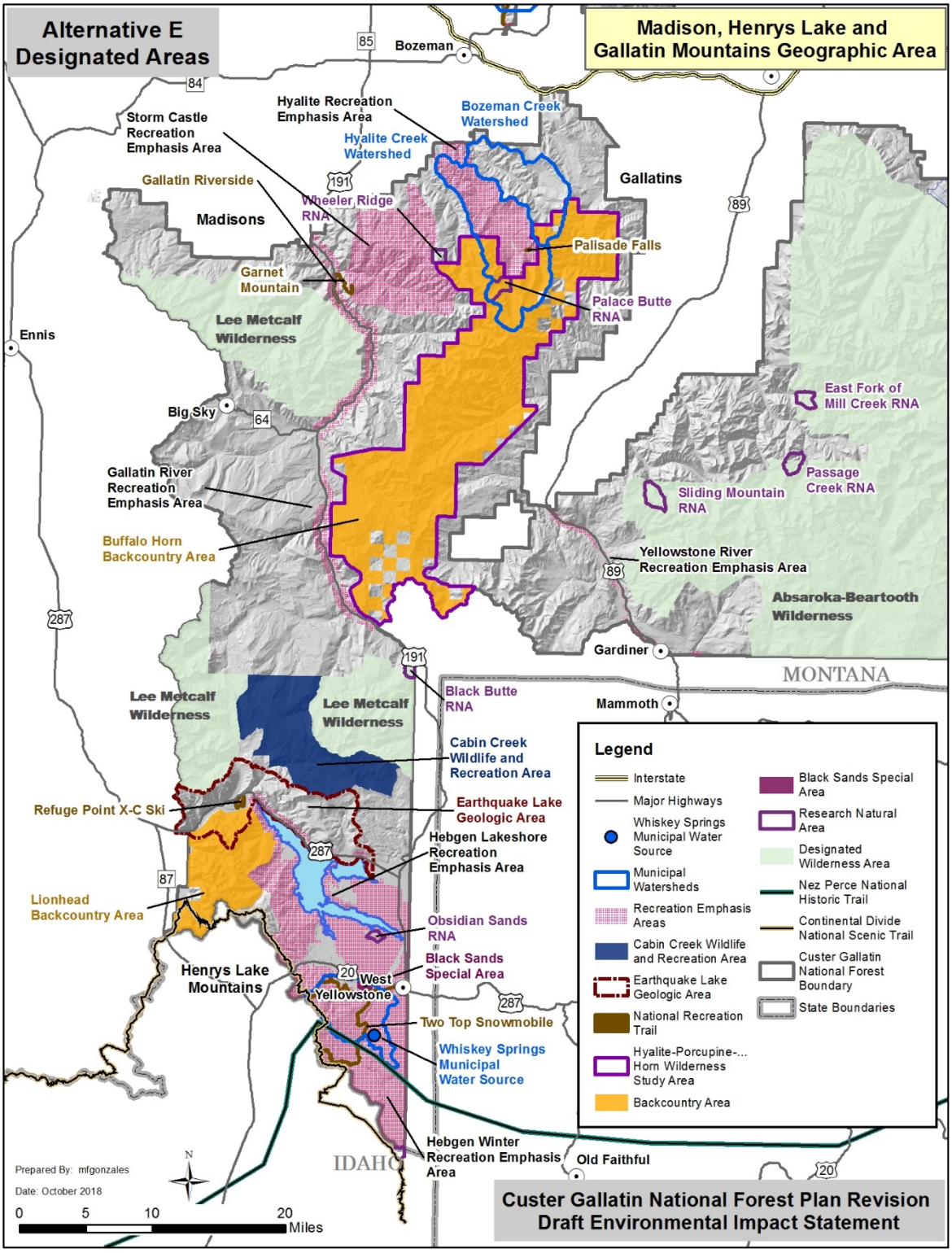
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Gallatin Mountains Geographic Area
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Hyalite Recreation
Emphasis Area
Bozeman Creek
Watershed
Storm Castle
Recreation
Emphasis Area
Hyalite Creek
Watershed
Gallatin Riverside
Gallatins
Wheeler Ridge
RNA
Madisons
Palisade Falls
Garnet
Mountain
Palace Butte
RNA
Lee Metcalf
Wilderness
Ennis
East Fork of
Mill Creek RNA
Big Sky
Passage
Creek RNA
Gallatin River
Recreation
Emphasis Area
Sliding Mountain
RNA
Buffalo Horn
Backcountry Area
Yellowstone River
Recreation Emphasis Area
Absaroka-Beartooth
Wilderness
Gardiner
MONTANA
Lee Metcalf
Wilderness
Lee Metcalf
Wilderness
Black Butte
RNA
Mammoth
Cabin Creek
Wildlife and
Recreation Area
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Geologic Area
Refuge Point X-C Ski
Hebgen Lakeshore
Recreation
Emphasis Area
Lionhead
Backcountry Area
Obsidian Sands
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West
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Whiskey Springs
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Water Source
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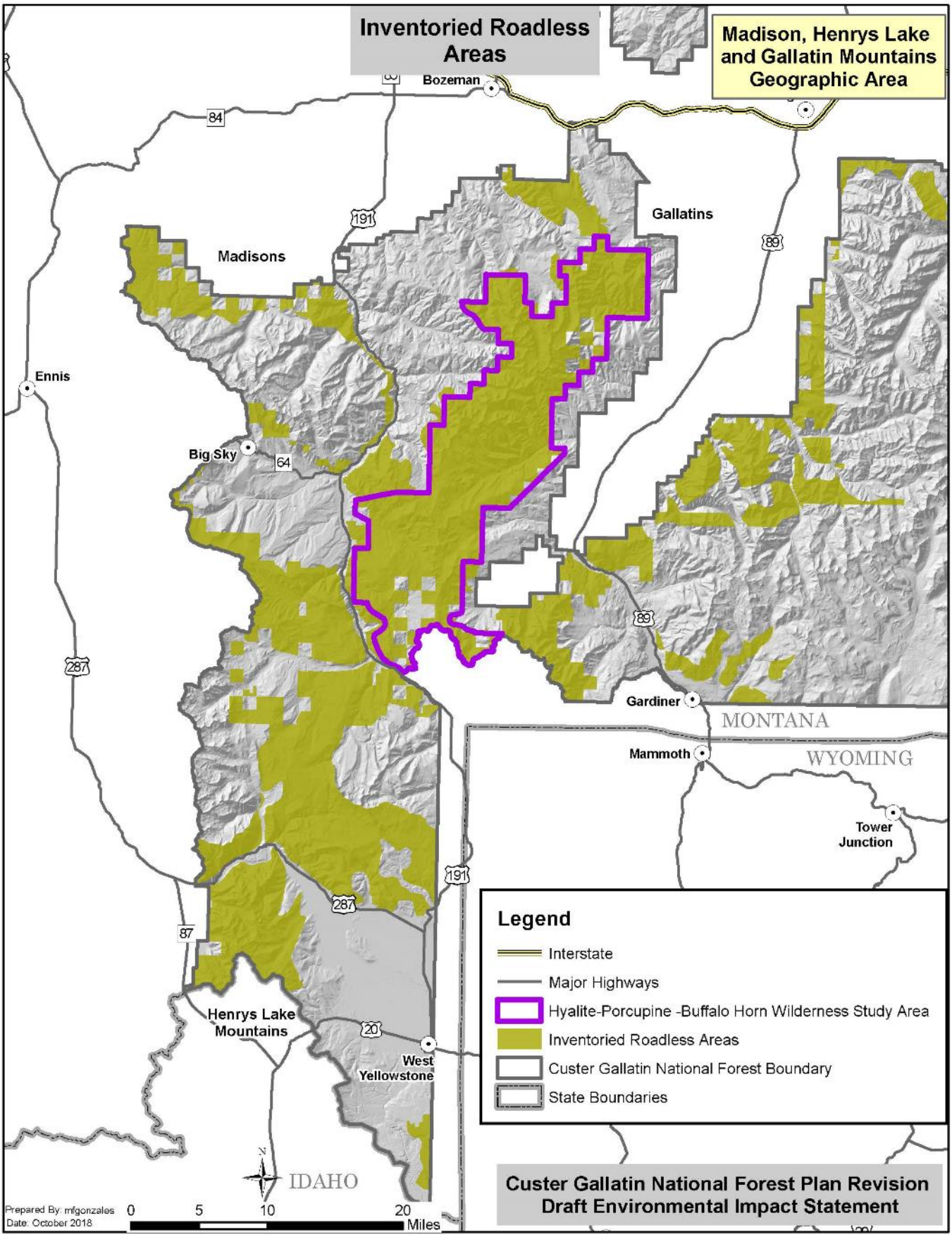
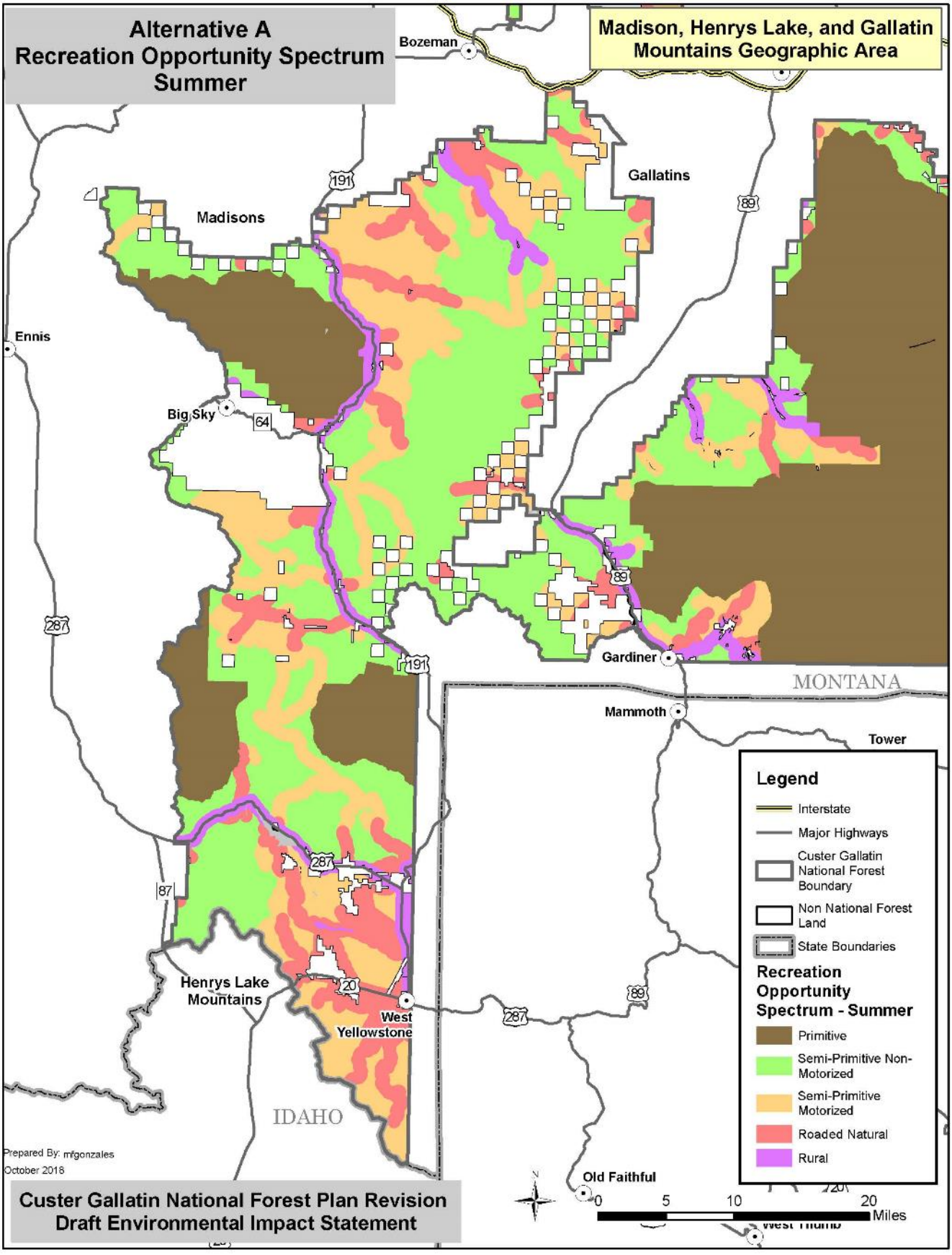
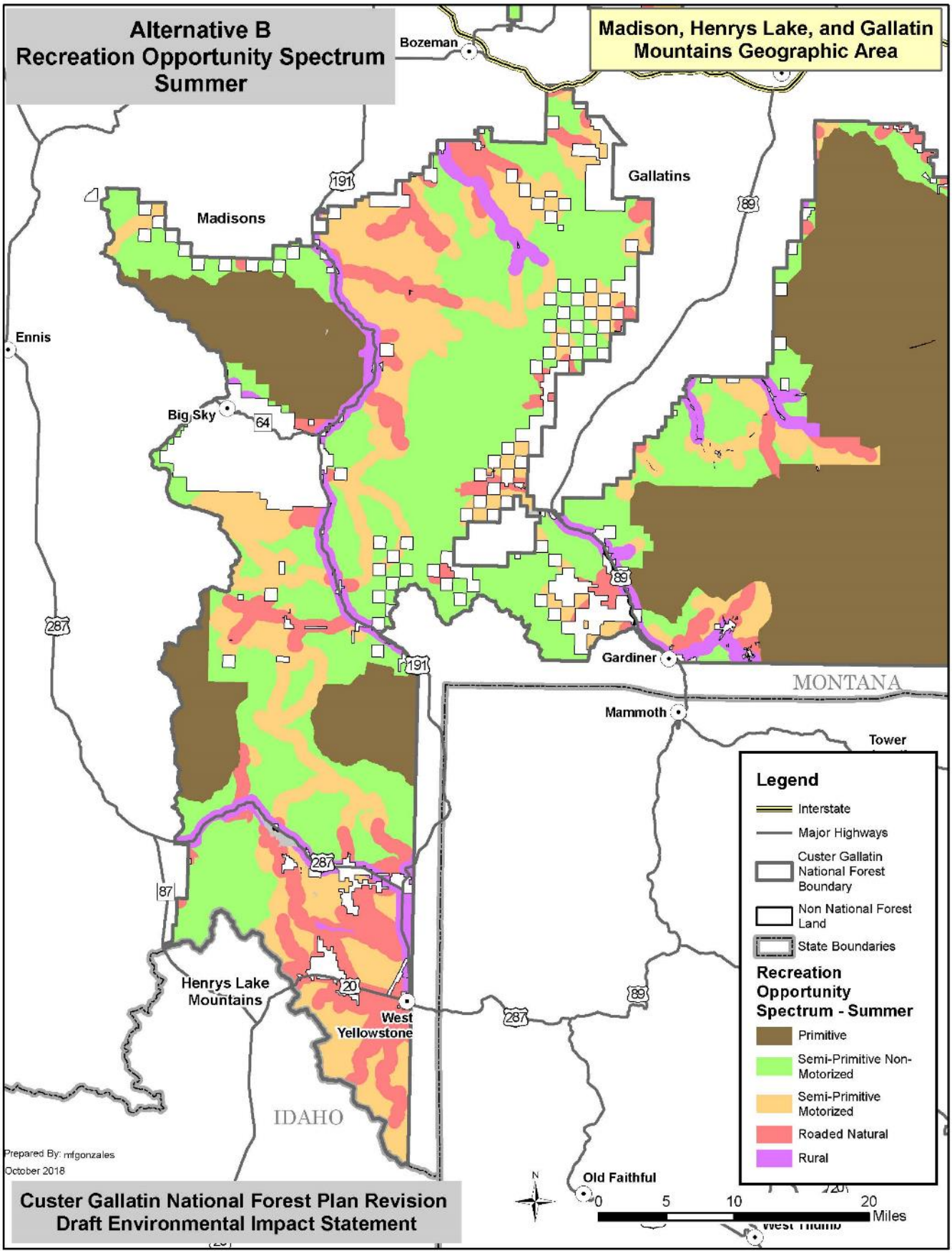
Inventoried Roadless Areas



Recreation Opportunity Spectrum – Summer




Alternative B
Recreation Opportunity Spectrum
Summer
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
MONTANA
Mammoth
Tower
Henrys Lake
Mountains
West
Yellowstone
IDAHO
Old Faithful
West Thumb
191
89
64
287
87
20
Legend
Interstate
Major Highways
Custer Gallatin National Forest Boundary
Non National Forest Land
State Boundaries
Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
Rural
N
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5
10
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Miles
Prepared By: mfgonzales
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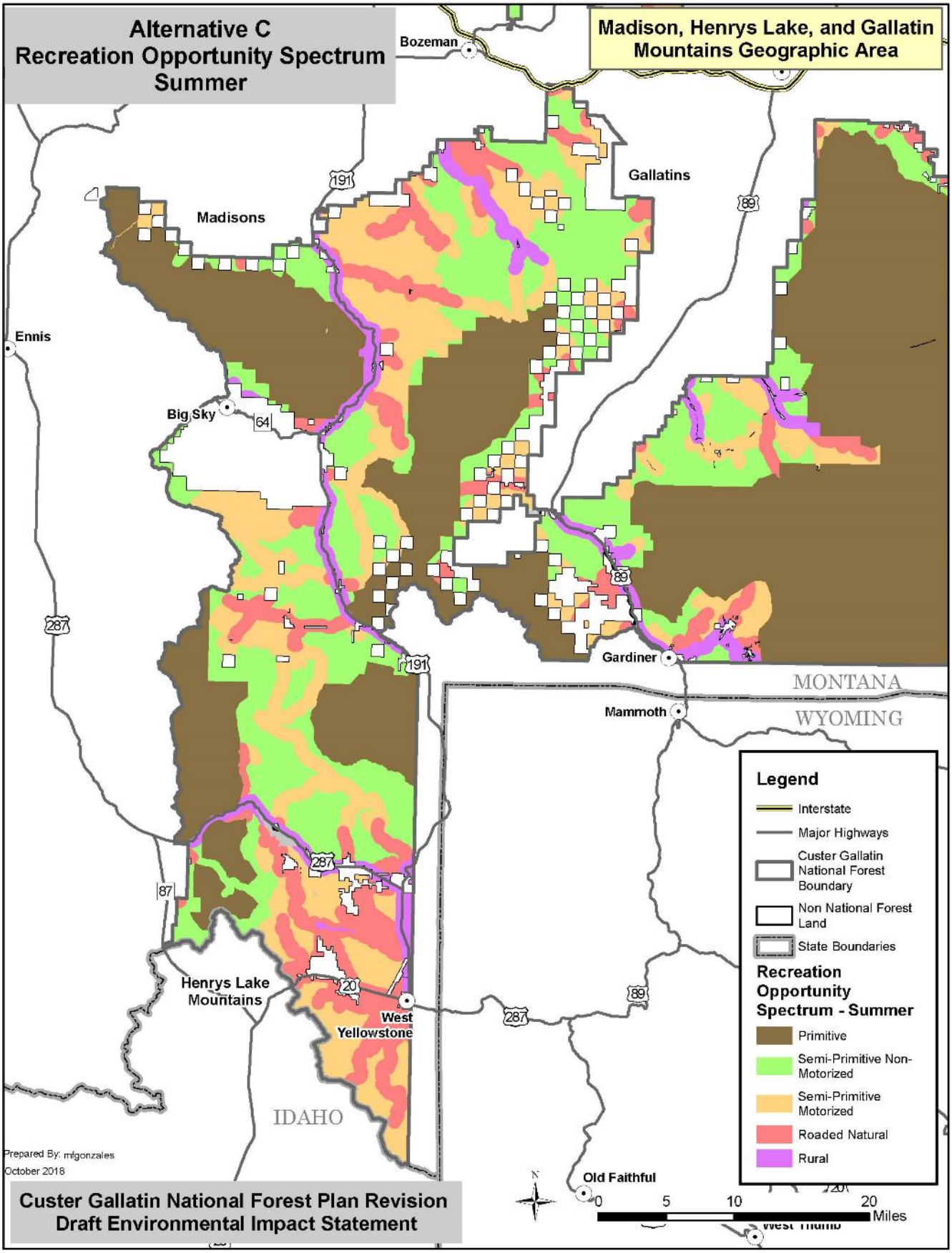
Alternative C
Recreation Opportunity Spectrum
Summer
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
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WYOMING
IDAHO
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Recreation Opportunity Spectrum - Summer
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Semi-Primitive Non-Motorized
Semi-Primitive Motorized
Roaded Natural
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Miles
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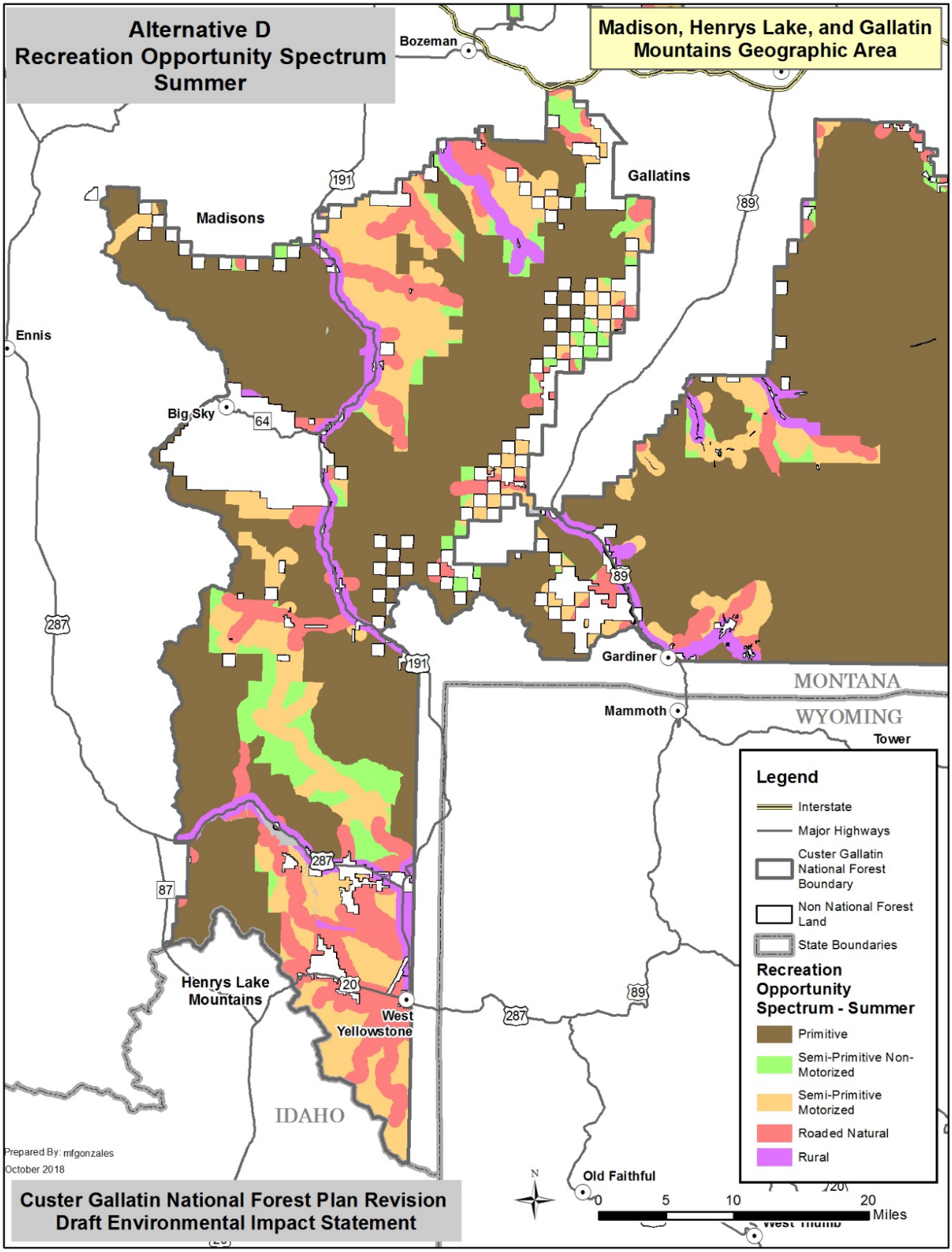
Alternative D
Recreation Opportunity Spectrum
Summer
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
Mammoth
Tower
MONTANA
WYOMING
IDAHO
Henrys Lake
Mountains
West
Yellowstone
Old Faithful
191
89
64
287
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Legend
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Custer Gallatin National Forest Boundary
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Recreation Opportunity Spectrum - Summer
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
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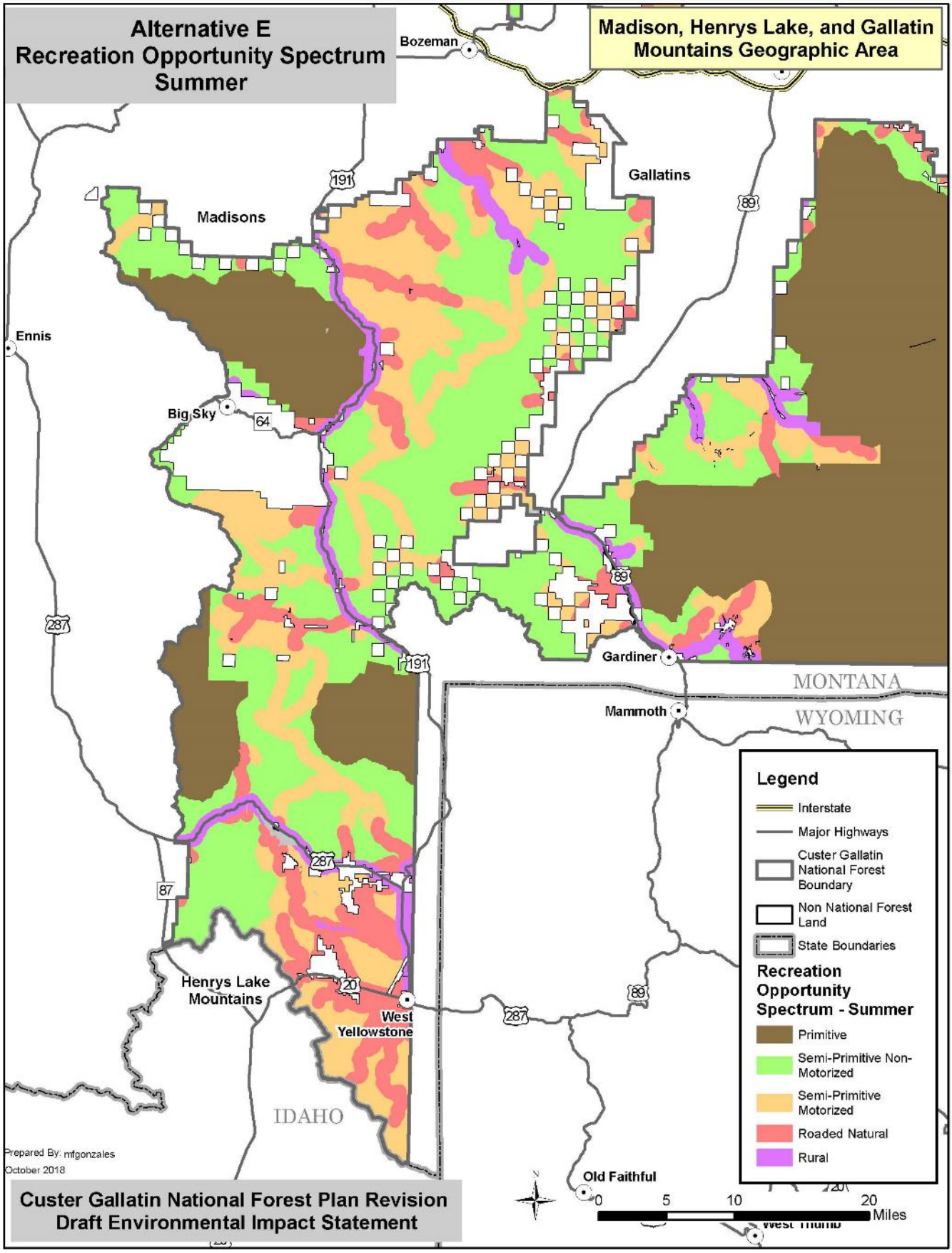
Alternative E
Recreation Opportunity Spectrum
Summer
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
Mammoth
MONTANA
WYOMING
Henrys Lake
Mountains
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Yellowstone
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Major Highways
Custer Gallatin National Forest Boundary
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Recreation Opportunity Spectrum - Summer
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Semi-Primitive Non-Motorized
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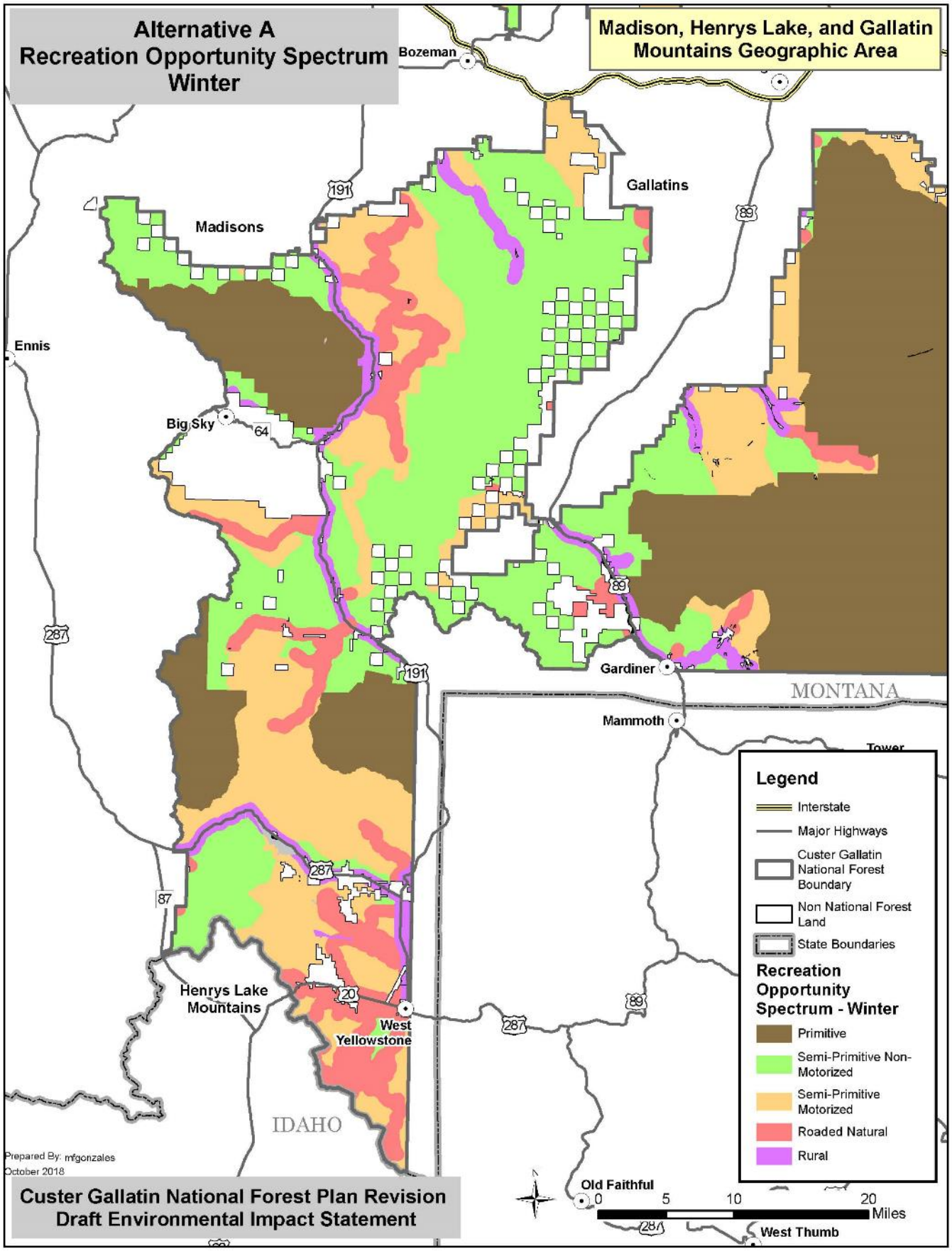
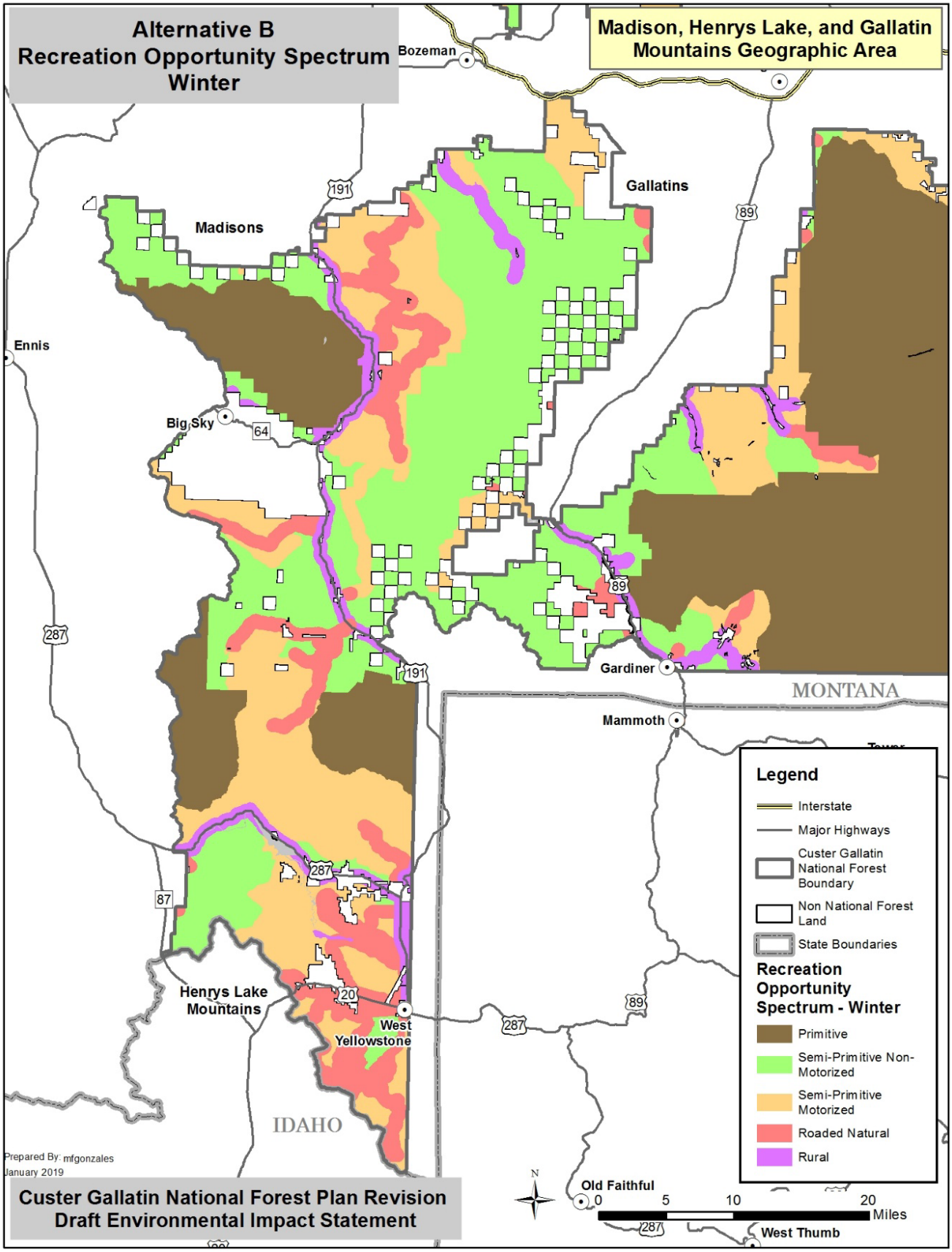
Recreation Opportunity Spectrum – Winter




Alternative B
Recreation Opportunity Spectrum
Winter
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
MONTANA
Mammoth
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Major Highways
Custer Gallatin National Forest Boundary
Non National Forest Land
State Boundaries
Recreation Opportunity Spectrum - Winter
Primitive
Semi-Primitive Non-Motorized
Semi-Primitive Motorized
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Rural
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January 2019
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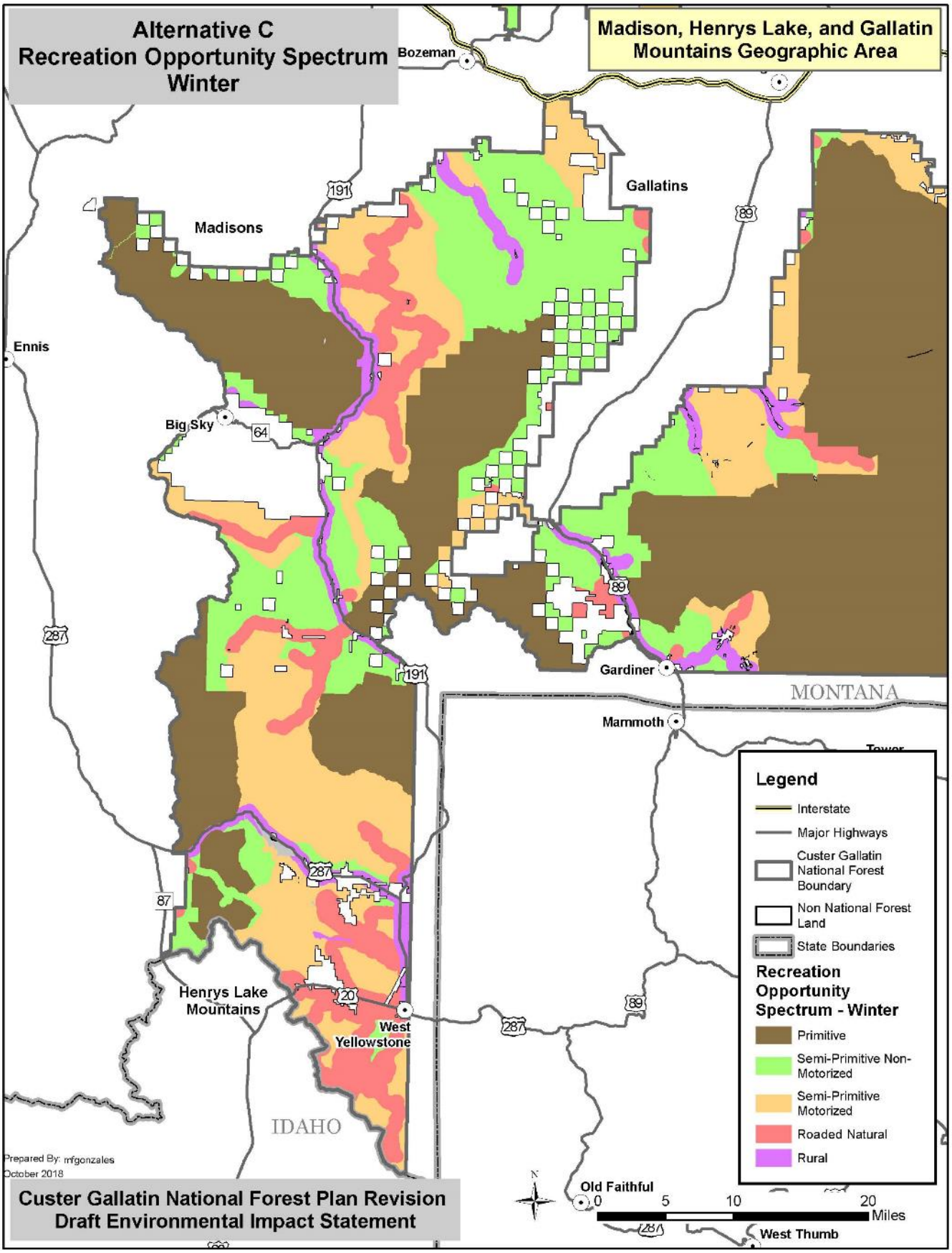
Miles


Alternative C
Recreation Opportunity Spectrum
Winter
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
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Ennis
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Gardiner
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Recreation
Opportunity
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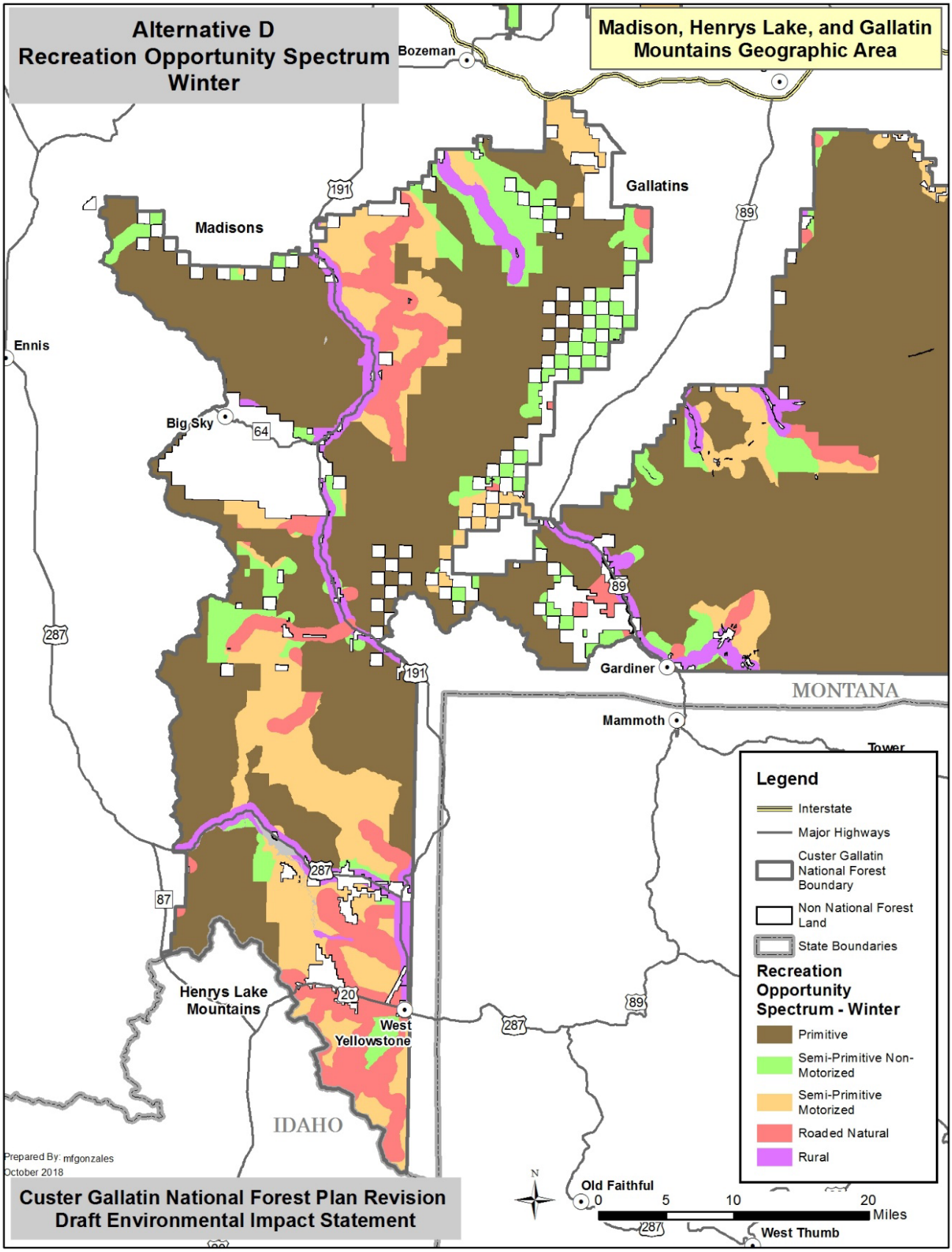
Alternative D
Recreation Opportunity Spectrum
Winter
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
Madisons
Ennis
Big Sky
Gardiner
MONTANA
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Mountains
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Yellowstone
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Recreation Opportunity Spectrum - Winter
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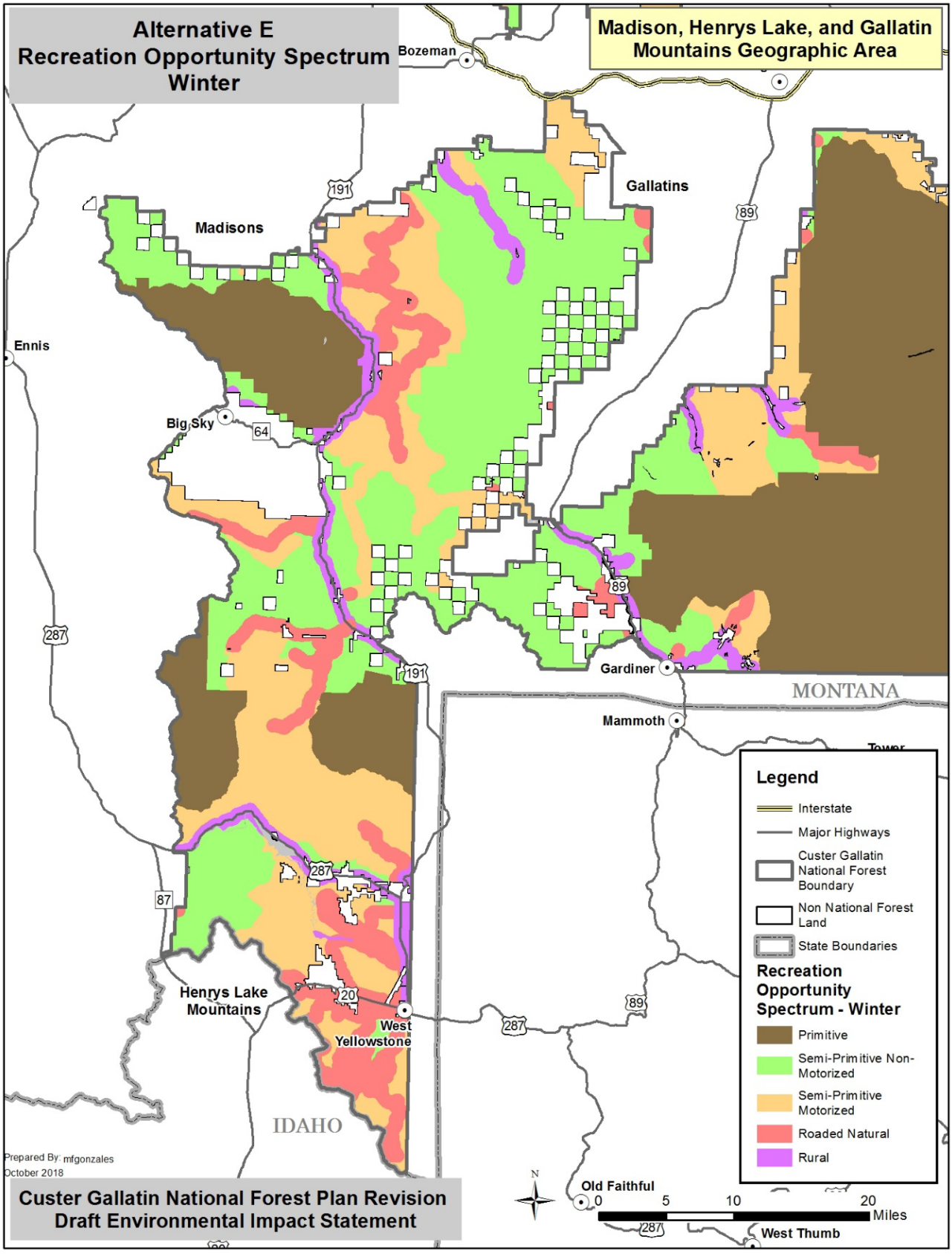
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Recreation Opportunity Spectrum
Winter
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Gallatins
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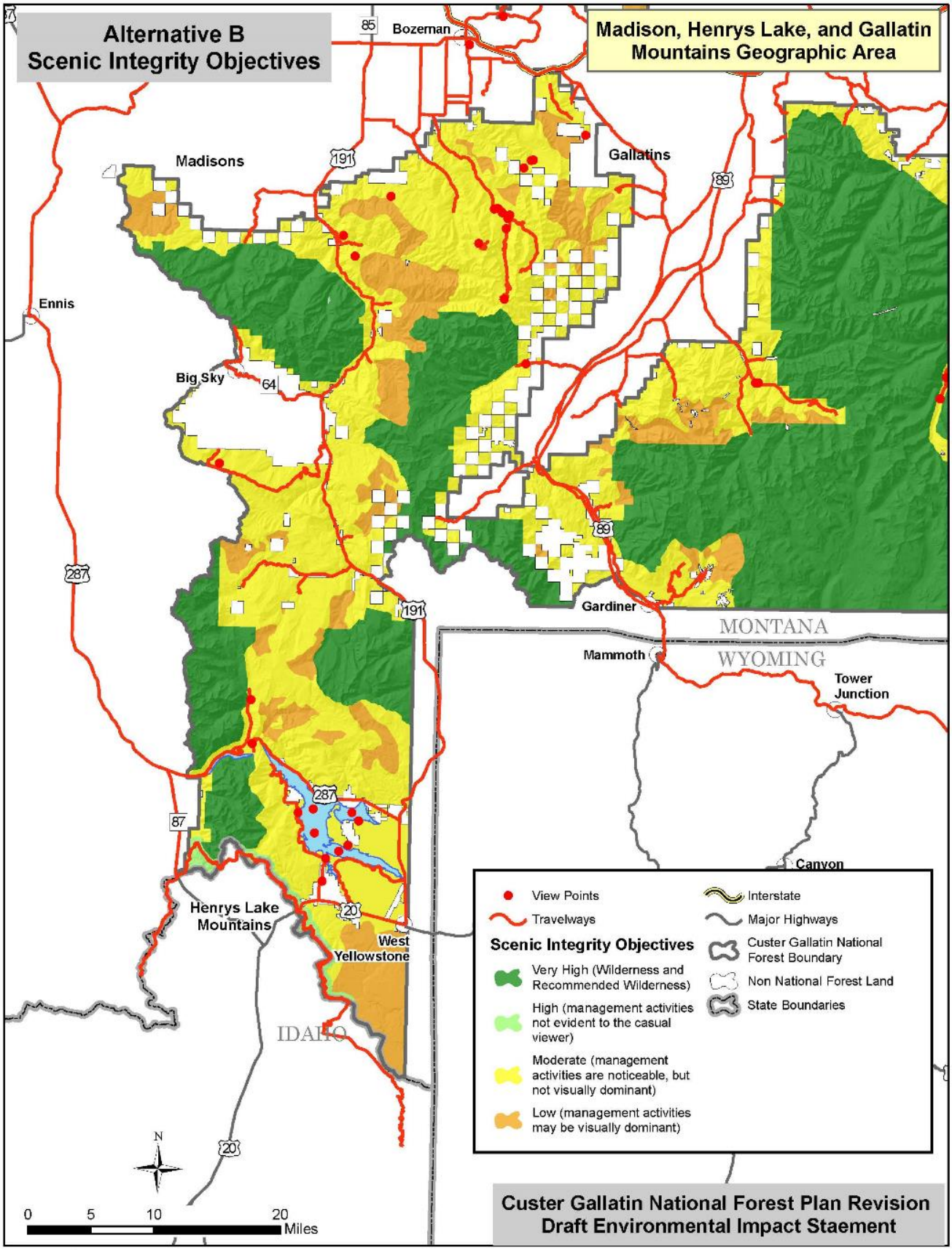
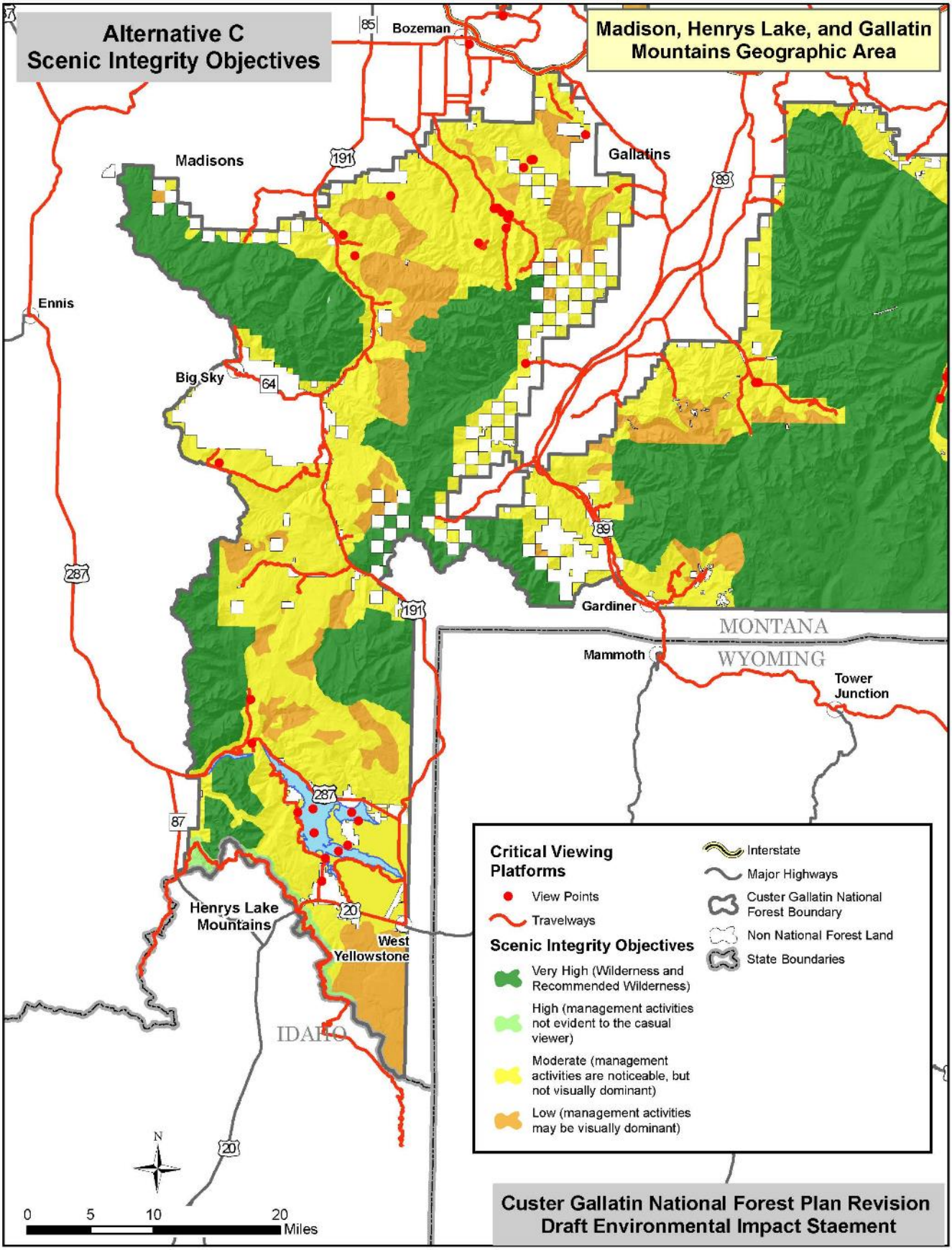
Scenic Integrity Objectives

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Scenic Integrity Objectives
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Madisons
Gallatins
Ennis
Big Sky
Gardiner
Mammoth
Tower
Junction
MONTANA
WYOMING
IDAHO
Henrys Lake
Mountains
West
Yellowstone
Critical Viewing
Platforms
View Points
Travelways
Scenic Integrity Objectives
Very High (Wilderness and Recommended Wilderness)
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Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
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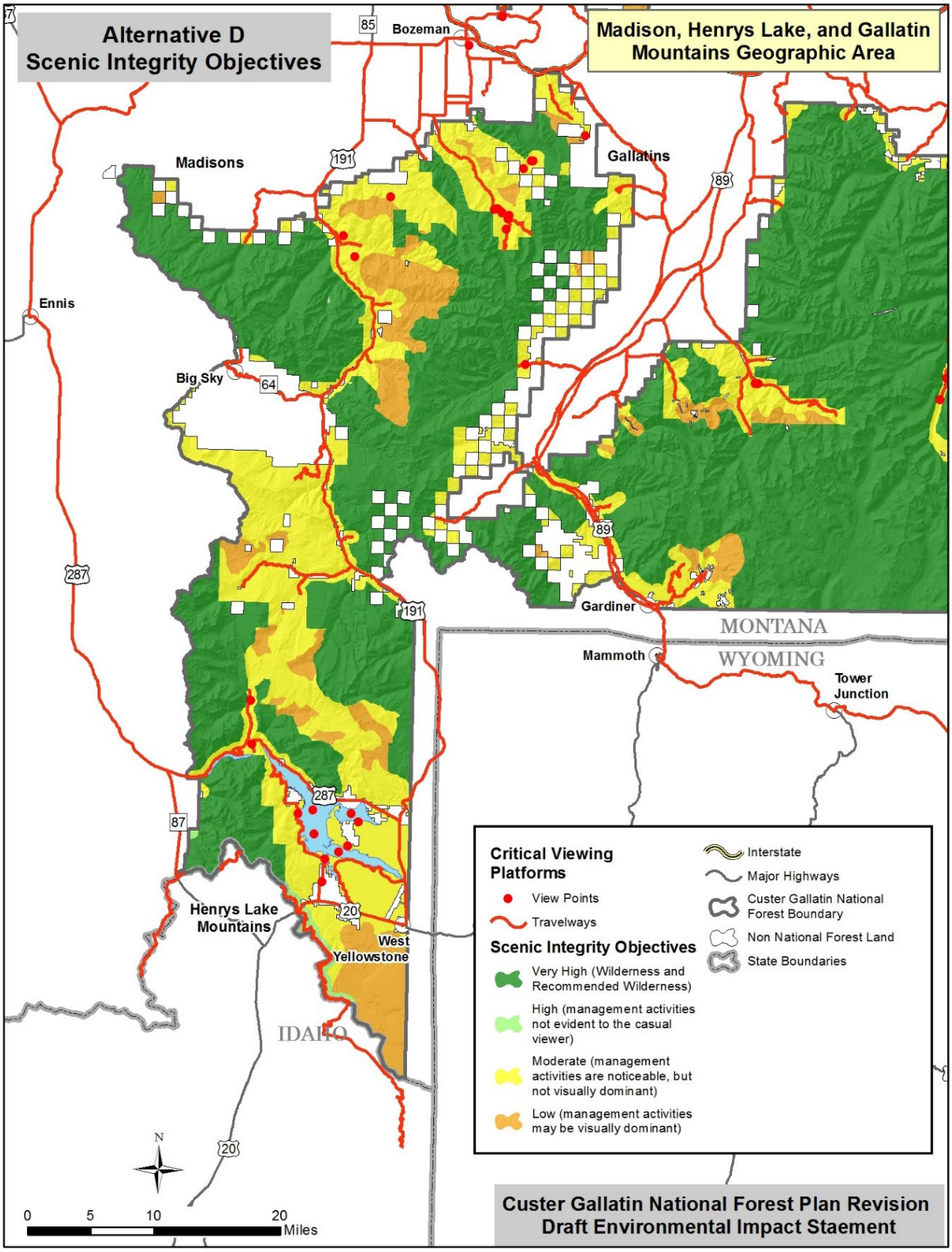
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Scenic Integrity Objectives
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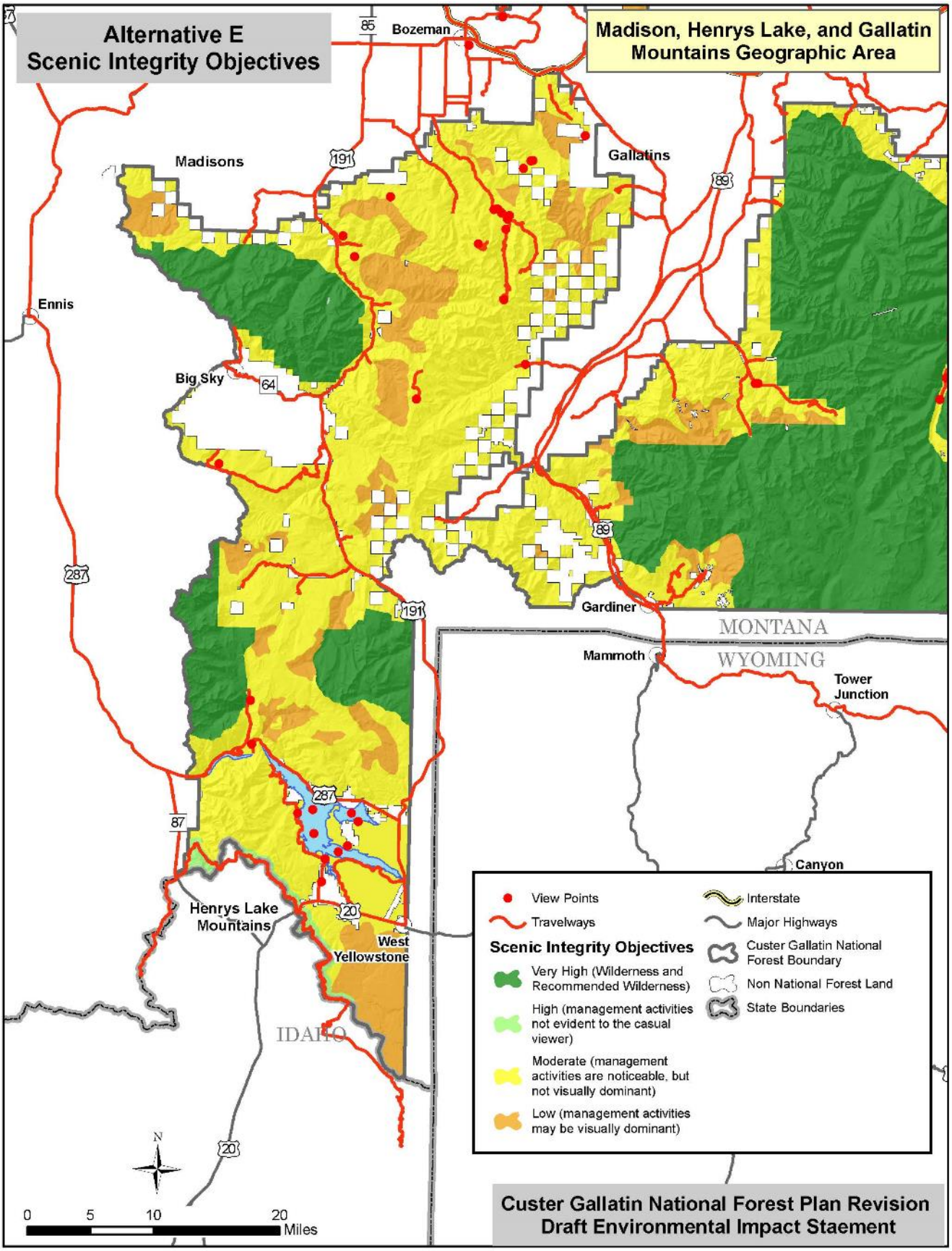
Miles
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Staement


Alternative E
Scenic Integrity Objectives
Madison, Henrys Lake, and Gallatin
Mountains Geographic Area
Bozeman
Madisons
Gallatins
Ennis
Big Sky
Gardiner
Mammoth
Tower
Junction
Canyon
Henrys Lake
Mountains
West
Yellowstone
MONTANA
WYOMING
IDAHO
View Points
Travelways
Scenic Integrity Objectives
Very High (Wilderness and Recommended Wilderness)
High (management activities not evident to the casual viewer)
Moderate (management activities are noticeable, but not visually dominant)
Low (management activities may be visually dominant)
Interstate
Major Highways
Custer Gallatin National Forest Boundary
Non National Forest Land
State Boundaries
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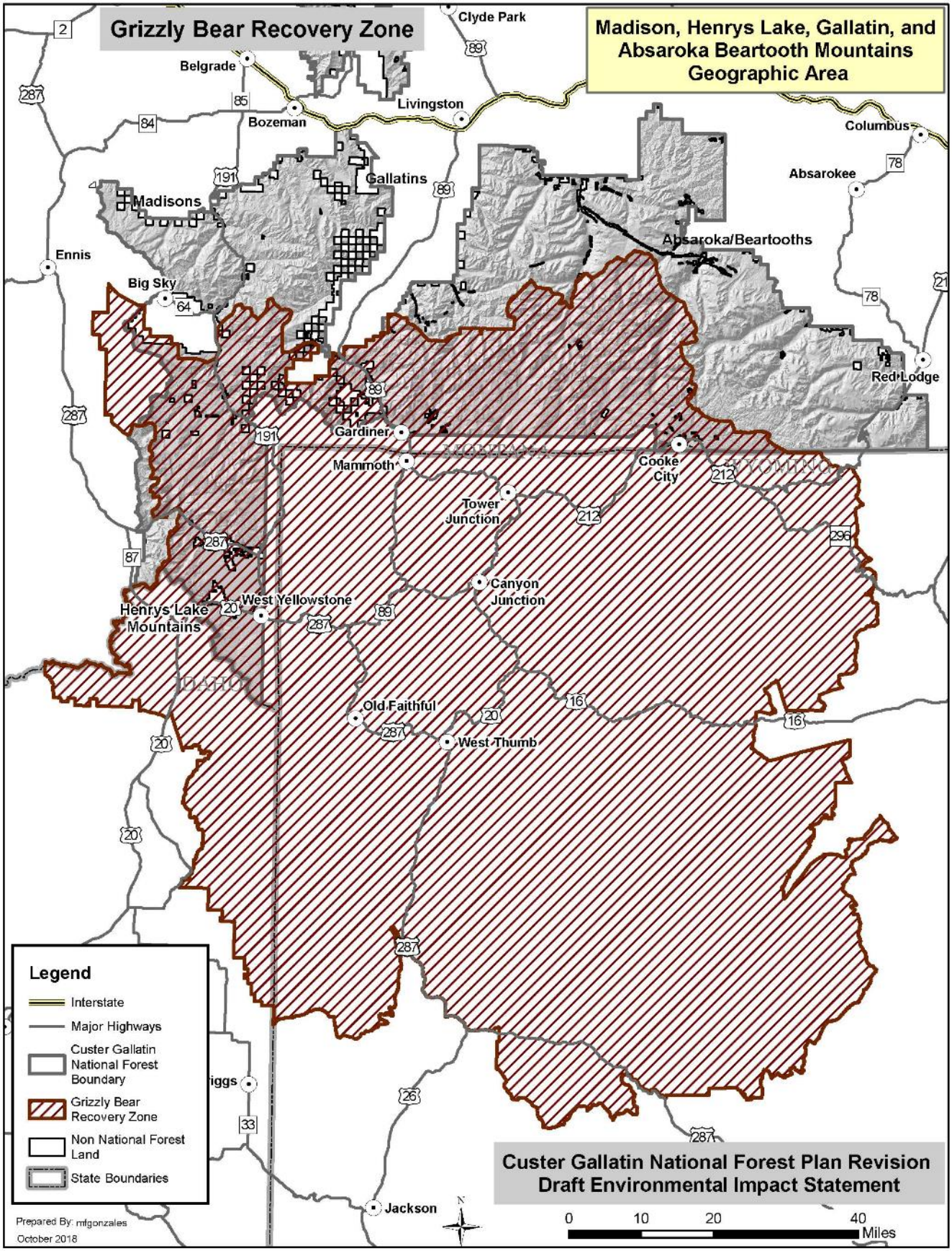
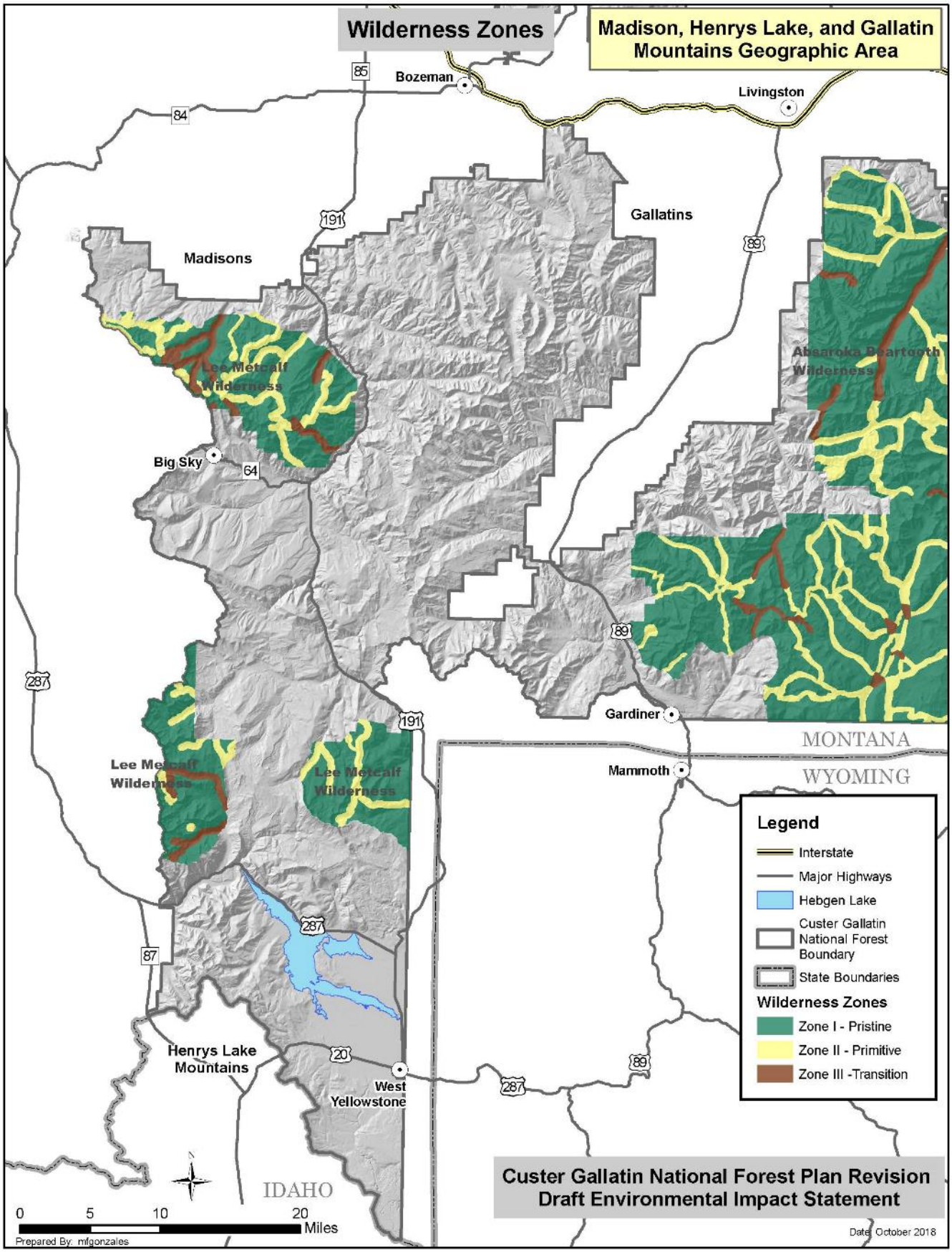
Custer Gallatin National Forest Plan Revision
Draft Environmental Impact Staement
Prepared By: mfgonzales
October 2018

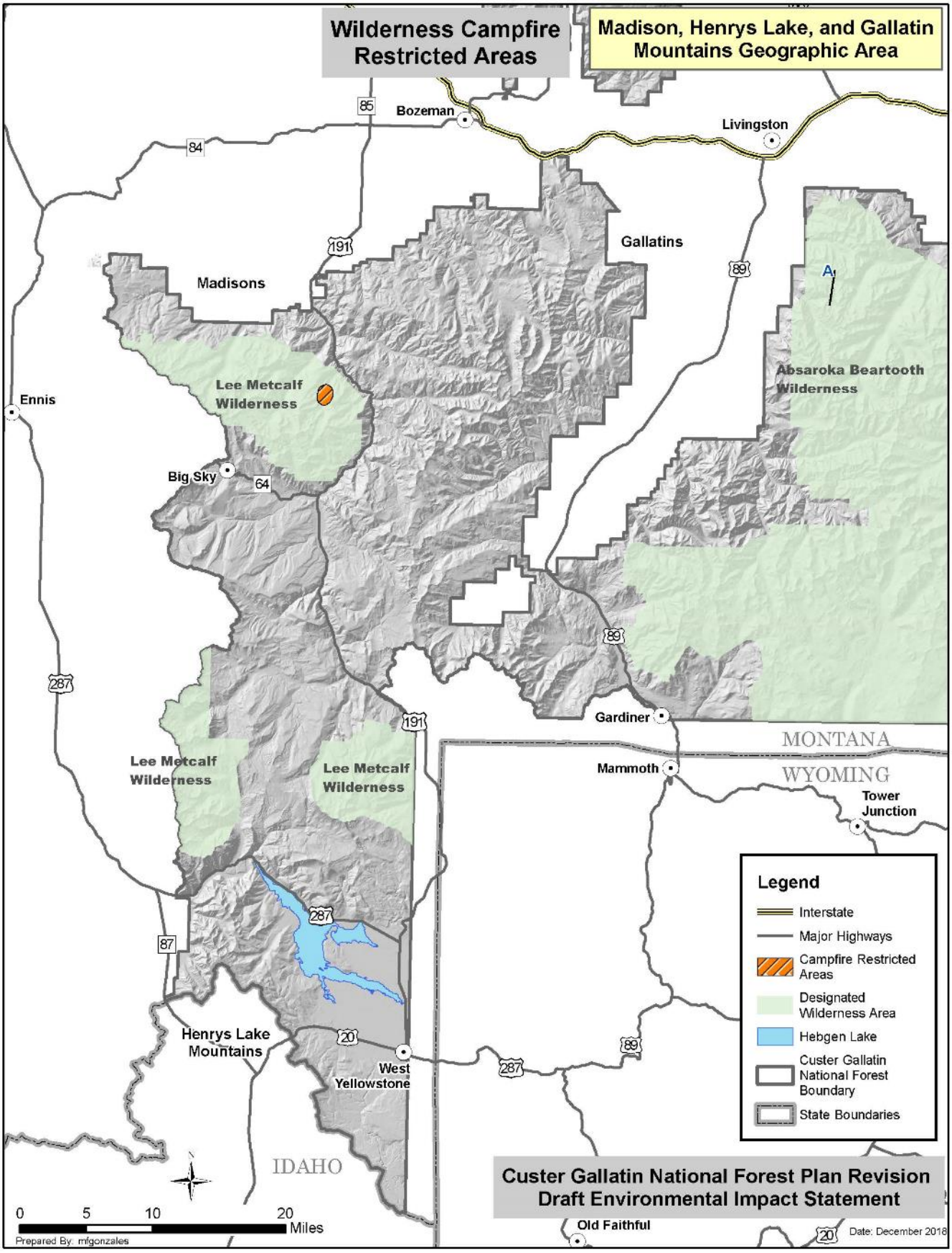
Grizzly Bear Recovery Zone



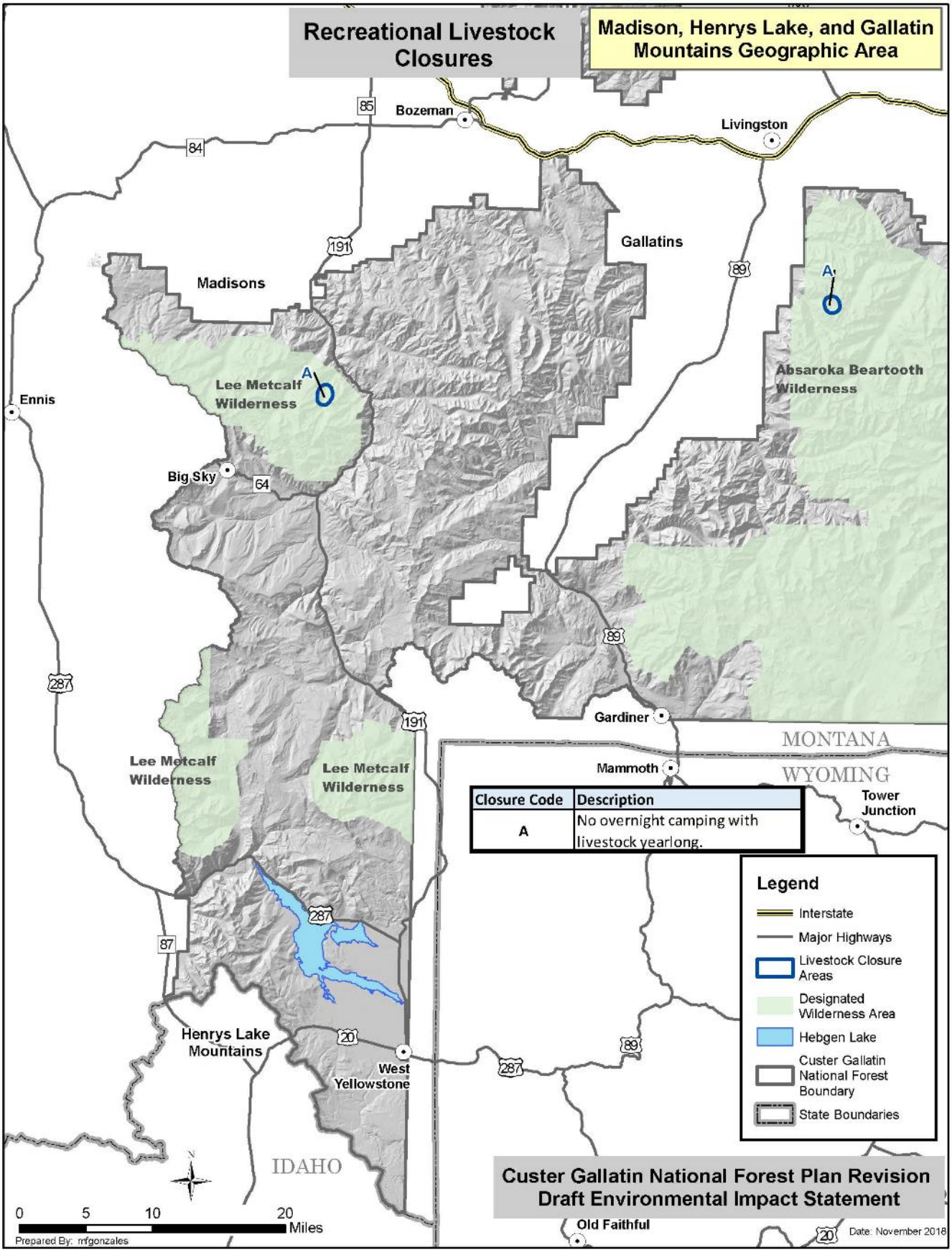
Wilderness Zones



Wilderness Campfire Restricted Areas



Wilderness Recreational Livestock Closures



Appendix B: Vegetation and Timber Analysis Process

Introduction

The alternatives described in this environmental impact statement were simulated with vegetation models to provide information used to compare and contrast effects to vegetation condition and timber volume through time. The analysis included an assessment on the natural range of variation to inform the development of desired conditions, identification of lands suitable for timber production, and evaluation of movement towards vegetation desired conditions and associated management activities, including timber harvest. This appendix describes the analytical methods and tools used to do the analysis supporting the comparison of alternatives and summarizes the results.

Data and Information Sources for Vegetation Analyses

A variety of well-documented datasets and tools has been used to inform the models used for the terrestrial vegetation analysis. They collectively make up the current best available information for quantifying vegetation conditions. The primary databases and information sources used in the vegetation analysis process are briefly summarized below.

Forest Inventory and Analysis

Forest inventory and analysis data consists of a set of points established on a nationwide systematic grid across all ownerships and regardless of management emphasis. The sample design and data collection methods are scientifically designed, publicly disclosed, and repeatable. For purposes of describing existing vegetation information for broad-scale analyses, it is infeasible to maintain a field inventory on every acre of a large analysis unit such as the 3.1 million acres of the Custer Gallatin National Forest. The Custer Gallatin inventory and analysis plots provide a systematic, spatially balanced, statistically reliable inventory using national protocols appropriate for providing unbiased estimates of forest conditions for use at broad scales of analysis. There are 517 plots for the entire plan area. In 2015, the Northern Regional Office of the Forest Service, in collaboration with the Remote Sensing Application Center and Interior West-Forest Inventory and Analysis developed a set of protocols to re-measure forest inventory and analysis plots after they were burned by recent wildfires; this was done for the Custer Gallatin National Forest plots and used for this analysis (Bush 2015). Plots are re-measured on a 10-year cycle, allowing evaluation of trends in forest conditions over time. Each plot represents about 6,000 acres. For more detailed information on forest inventory and analysis, refer to the work of Bush and Reyes (2014), Czaplewski (2004) and the Interior West Forest Inventory and Analysis Program website (http://www.fs.fed.us/rm/ogden/index.shtml).

Region Vegetation Map (VMap)

The USDA Forest Service Northern Region, also referred to as Region 1, Vegetation Map (VMap) is a spatially explicit (mapped), polygon-based product derived from remotely sensed data that contains information about the extent, composition, and structure of vegetation across National Forest System lands in the Northern Region. The VMap database provides four primary map

products; lifeform, tree canopy cover class, tree size class, and tree dominance type. Secondary map products used in this analysis include "image likeness scores" for each tree species in each polygon as well as estimated diameter of trees in each polygon. Satellite imagery and airborne-acquired imagery are used to develop the database and are refined through field sampling and verification. The VMap was designed to allow consistent, continuous applications between regional inventory and map products and across all land ownerships with sufficient accuracy and precision. An independent accuracy assessment was conducted to provide a validation of the data, giving an indication of the reliability of the map products (Brown, 2015). Refer to the Northern Region's "Multi-level Vegetation Classification, Mapping, Inventory and Analysis System" (Barber, Berglund and Bush 2009) and other publications (Barber, Bush and Berglund 2011, Brown 2016) for an overview of the map unit design, the process used to develop the layers, and a detailed description of VMap vegetative data.

Monitoring Trends in Burn Severity

Monitoring Trends in Burn Severity is an interagency program whose goal is to consistently map the burn severity and extent of large fires across all lands of the United States from 1984 to present. This includes all fires 1,000 acres or greater in the western United States and 500 acres or greater in the eastern Unites States. The extent of coverage includes the continental U.S., Alaska, Hawaii and Puerto Rico. Monitoring Trends in Burn Severity data are freely available to the public and are generated by leveraging other national programs including the Landsat satellite program, jointly developed and managed by the U.S. Geological Survey and the national Aeronautics and Space Administration (NASA). Landsat data are analyzed through a standardized and consistent methodology, generating products at a 30-meter resolution dating back to 1984. One of the greatest strengths of the program is the consistency of the data products, which would be impossible without the historic Landsat archive, the largest in the world. Additional information and data can be found at https://www.mtbs.gov/ and Eidenshink et al.(2007).

Custer Gallatin National Forest Geographic Information System

The Custer Gallatin National Forest has a library of geographic information system (GIS) data for the national forest. The library includes a large number of mapped data layers with associated metadata. Primary layers referenced for the vegetation analysis include vegetation data layers (VMap), fire history, fire start history, timber harvest history, insect and disease aerial detection survey data, grizzly bear habitat, lynx habitat layers, roads, topographical features such as elevation and slope, and administrative-related boundary layers (such as ownership, inventoried roadless areas, wilderness areas, and wildland urban interface).[1]

Many summaries and assessments of vegetation condition were developed using GIS, which is both an analysis tool and a display technology, meaning it can be used both to track information and to display it in a variety of graphic formats. As explained later, the GIS tool was used in determining timber suitability. It was also used to build the acre summaries needed for PRISM analysis areas and spatial data for the SIMPPLLE model.

[1] The link to Forest geospatial data can be found on the Custer Gallatin National Forest's web page (https://www.fs.usda.gov/main/custergallatin/home).

Potential Vegetation Types

Potential vegetation types are mapping units delineating areas that have similar biophysical environments (such as climate and soil characteristics) that produce plant communities of similar composition, structure, and function. Potential vegetation provides a basis for identifying and mapping unique biophysical conditions (Pfister et al. 1977) which can form as the basis of understanding ecological dynamics including successional development (Arno, Simmerman and Keane 1985), fire regimes (Barrett 1988, Morgan et al. 2001) and site productivity (Milner 1992). The Forest Service's Northern Region has identified potential vegetation groups (broad- and mid-level groupings of habitat types) that are recommended for use at broad levels to provide consistent analysis and monitoring, as described by Milburn and others (2015). Three coniferous forest potential vegetation types are found on the Custer Gallatin National Forest: warm-dry, cool-moist, and cold. For this analysis, the warm dry potential vegetation type was divided in to two types: warm dry-montane and warm dry-pine savanna. This was done to better capture the significant compositional and biophysical differences between the montane and pine savanna ecosystems. Refer to appendix D of the forest plan for a cross-reference of habitat types and other vegetation classifications to the potential vegetation types used in the forest plan.

For modeling and analysis, it was necessary to map the distribution of potential vegetation types across the Custer Gallatin. The potential vegetation type map used for this analysis was developed by the Northern Region in the early 2000s (Jones 2004). Sources of data included field plots and remote sensing. Lands with no field data were populated by extrapolation of plot data and the use of models that integrated site factors influencing vegetation, such as precipitation, slope and elevation. This layer, referred to as *R1 Potential Vegetation Types* or *R1-PVT,* is the best available potential vegetation type layer. It is the only map of potential vegetation that covers the national forest, and is a mid-level depiction of ecological condition. Potential vegetation classifications were adjusted when necessary to be consistent with current vegetation maps. Reid et al. (2018) shows the vegetation grouping and adjustment logic used for the Custer Gallatin National Forest plan revision.

Vegetation Models

The vegetation management strategy for the Custer Gallatin National Forest is to maintain or trend towards the desired conditions for vegetation. Modeling changes in vegetation over time, choosing appropriate management practices, and evaluation of movement towards desired conditions was accomplished using the following set of analytical tools and models:

- Forest Vegetation Simulator—This forest growth simulation model was used to estimate timber growth and yield as well as vegetation response to alternative management timings and methods (Dixon 2008).
- PRISM—This model was used to derive a schedule vegetation treatments to achieve vegetative desired conditions (Nguyen 2018). Treatments were chosen from the suite of possible management options modeled with the Forest Vegetation Simulator. Treatments were also chosen to respond to resource constraints such as watershed integrity, sustainable timber products, and budget limitations
- SIMPPLLE (SIMulating Patterns and Processes at Landscape scaLEs)—This model was used to project the treatments scheduled by the PRISM model in the context of an uncertain

future (Chew, Moeller and Stalling 2012). Natural processes such as fire, succession, insect and disease were simulated in a stochastic fashion in and around the PRISM-scheduled treatments to provide a range of possible vegetation conditions for each alternative.

These models are tools that provide information useful for understanding vegetation change over time and the relative differences between alternatives. The PRISM and SIMPPLLE models are best used to provide information of comparative value; these models are not intended to be predictive or to produce precise values for vegetation conditions. Out of necessity, the models simplify complex and dynamic relationships between ecosystem processes and disturbances (such as climate, fire, and succession) and vegetation over time and space. Though best available information, including corroboration with independent data sources, professional experience, and knowledge, is used to build these models, there is a high degree of variability and an element of uncertainty associated with the results because of the ecological complexity and the inability to accurately predict the timing and/or location of future events. The following sections provide more detailed descriptions of each of the above-mentioned models.

Model Interactions

The PRISM and SIMPPLLE models are used interactively to analyze vegetation conditions. Wildland fire disturbances are first modeled in SIMPPLLE. Resultant disturbance levels are then input into the PRISM model as acres of projected wildland fire and insect disturbance. The PRISM model is then run to schedule treatments to move toward desired conditions in the context of average expected disturbance levels. The outputs from PRISM are then input into the SIMPPLLE model to evaluate treatments in the context of a range of stochastic ecological processes and disturbances (fire, insect, disease, and succession) and spatial analysis of the change in vegetation conditions over time. Figure 1 displays the interaction and relationship between the PRISM and SIMPPLLE models.

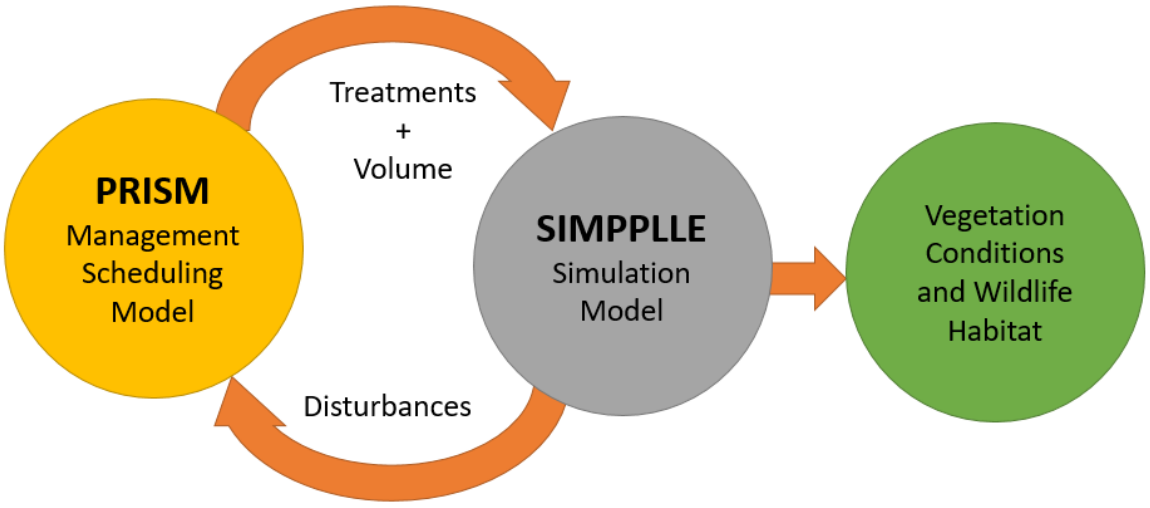


Figure 1. Use of PRISM and SIMPPLLE models in determining effects on vegetation conditions and habitat

Vegetation Analyses Process and Assumptions

Natural Range of Variation

Introduction

A critical step in assessing ecological integrity and desired conditions was to determine the natural range of variation for selected key ecosystem characteristics and then assess the status of the ecosystem based on projected trends of key ecosystem characteristics. The natural range of variation refers to the variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application (FSH 1909.12). It represents the distribution of conditions under which ecosystems developed and gives context for evaluating the integrity of current conditions, and identifying important compositional, structural, and functional elements that may warrant restoration. In contrast to the generality of historical ecology, the natural range of variation concept focuses on a distilled subset of past ecological knowledge developed for use by resource managers; it represents an explicit effort to incorporate a past perspective into management and conservation decisions (Wiens et al. 2012).

The future will not be the same as the past. Further, the analysis includes inherent uncertainty: it is appropriate to use additional resources including literature and expert opinion to ensure the "envelope" of vegetation conditions described by desired conditions will meet future ecological and social needs. Therefore, desired conditions are not always equal to the natural range of variation, and additional factors were considered in the development of desired conditions. There may be other factors (social, economic or ecological) that lead the responsible official to determine that the natural range of variation may not be an appropriate desired condition for certain characteristics. These considerations include maintaining conditions that contribute to long-term resilience given uncertainties in future climate and disturbances; sustaining stand structures or species compositions that provide habitat for at-risk wildlife or plant species; conserving rare structures or components; existing or anticipated human use patterns; the effects changing climate may have; and ecosystem services expected from national forest lands (such as reduction of fire hazard and production of forest products).

There is also potential for ecological transformations to occur in temperate ecosystems, based on the potential for interrelated drivers such as chronic and acute drought, wildfire, and insect outbreaks to push ecosystems beyond their thresholds for resilience (Millar and Stephenson 2015, Golladay et al. 2016). In some cases, management intervention might be able to ease the transition to new forest states and minimize losses of ecosystem services (Millar and Stephenson 2015). We do not currently have the capability to predict such possible shifts at the local scale. By basing the desired conditions around the full range of natural variation, with a focus on maintaining the full suite of ecosystem diversity and components that enhance resilience to disturbance, the forest plan would guide management toward maintaining functioning ecosystems in the face of uncertainty.

Process and Methods

The modeling extent for the original natural range of variation analysis (2017) covers the entire Custer Gallatin National Forest plan area, including lands of other ownerships. This includes private lands around the island mountain ranges as well as wide buffers around smaller pieces of

ownership, such as in the Pryor, Ashland, and Sioux areas. This area was included to allow natural processes to move across the large landscape. In addition, the entire Crazies Geographic Area was included, for similar reasons, even though the Custer Gallatin only administers the southern half of this mountain range. Outputs were summarized for National Forest System lands on the Custer Gallatin National Forest. The model was run for each geographic area individually due to the large extent.

When considering the period of time over which to evaluate the natural range of variation, "the pre-European influenced reference period considered should be sufficiently long, often several centuries…and should…include short-term variation and cycles in climate."[2] To meet this intent, vegetation conditions 1,000 years into the past were modeled. This reference period allowed us to simulate the conditions associated with much of the time period known as the Medieval Climate Anomaly (about 950 to 1250), as well as the other end of the climate spectrum known as the Little Ice Age (early 1300s to about 1870s). The inclusion of the Medieval Climate Anomaly is valuable in that it might indicate conditions and processes that could occur in the modern climate regime. SIMPPLLE was run under a scenario that included natural ecological processes and disturbances, and their interaction with climate, using the Palmer Drought Severity Index as the indicator of past climate. Data for this index is reconstructed for localized points, and the data point nearest the Custer Gallatin National Forest was used to evaluate the climate. The data was categorized into three climate scenarios: wetter, dryer, and normal, and the appropriate scenario was applied to each modeling period (decade). Key model processes, such as wildfire, insects, and disease function differently depending on the climate scenario.

Wildfire processes, including the probability of ignition, fire sizes, fire regimes (severities), weather ending events, and effects to successional pathways are key drivers in the model. Wildfire processes were calibrated using local fire history data, applicable fire history studies and publications, previous modeling efforts, and expert judgment. Most notably, a detailed analysis was done to estimate historic fire regimes using LANDFIRE reference data (Rollins and Frame 2006). The probability and effects of key insect and disease processes (bark beetles, defoliators, and root diseases) were also calibrated using the latest science regarding insect hazard and mortality trends, local data, and expert judgment.

For the natural range of variation, the model was run for 30 iterations. Multiple iterations were used to capture the unpredictable nature of disturbances and their influence on vegetation dynamics on the landscape. Since we don't have data on the exact vegetation and disturbance histories, simulating multiple scenarios within the range of known and understood uncertainty results in a range of outcomes that collectively represent the natural condition of the past. It was important to create a range of random starting points so that the analysis reflected conditions unaffected by modern influences. To accomplish this, each landscape was run for 50 periods (500 years) to achieve an equilibrium in the historic disturbance/vegetation dynamic. The output from that was then run for 119 periods. The 30 runs were done in 3 batches of 10, where for the first 19 periods there was a randomly selected climate, so there were 3 different climate streams. Only the results from the last 100 periods (1,000 years) where used for the final natural range of variation results.

[2] Forest Service Handbook 1909.12, definition in zero code

Table 1 shows the results of the natural range of variation analysis for species composition and structure. Table 2 shows results for the patch size distribution.

Table 1. Natural range of variation (NRV) shown* as the proportion of the specified Northern Region (R1) Broad potential vegetation type containing the specified characteristic

Ecosystem Characteristic	R1 broad potential vegetation type (PVT)	Metric (Species/Size Class/Density Class)	NRV Low (% of PVT)	NRV High (% of PVT)
Dominance (Dominant tree species)	All	Douglas fir	25.2%	30.1%
	All	Ponderosa pine	12.5%	13.8%
	All	Lodgepole	10.9%	16.4%
	All	Spruce/Fir	19.2%	25.5%
	All	Whitebark	15.5%	19.2%
Species Presence (Presence of at least one tree per acre)	All	Douglas fir	36.2%	40.4%
	All	Ponderosa pine	12.5%	13.9%
	All	Lodgepole	21.0%	29.8%
	All	Spruce	20.6%	24.9%
	All	Fir	31.3%	40.5%
	All	Whitebark	17.0%	20.8%
Size (Mean basal area weighted diameter)	Cold	Seed/Sap (0-5” DBH)	2.2%	24.7%
	Cold	Pole (5-10” DBH)	5.8%	24.3%
	Cold	Medium (10-15" DBH)	48.7%	71.5%
	Cold	Large (<15" DBH)	8.2%	20.9%
	Cool Moist	Seed/Sap (0-5” DBH)	5.6%	34.4%
	Cool Moist	Pole (5-10” DBH)	5.0%	27.7%
	Cool Moist	Medium (10-15" DBH)	34.1%	60.8%
	Cool Moist	Large (<15" DBH)	9.4%	25.8%
	Warm Dry - Montane	Seed/Sap (0-5” DBH)	9.8%	37.8%
	Warm Dry - Montane	Pole (5-10” DBH)	3.6%	15.5%
	Warm Dry - Montane	Medium (10-15" DBH)	20.9%	35.1%
	Warm Dry - Montane	Large (<15" DBH)	28.7%	62.1%
	Warm Dry - Pine Savanna	Seed/Sap (0-5” DBH)	2.3%	37.2%
	Warm Dry - Pine Savanna	Pole (5-10” DBH)	0.0%	24.7%
	Warm Dry - Pine Savanna	Medium (10-15" DBH)	0.0%	24.5%
	Warm Dry - Pine Savanna	Large (>15" DBH)	54.2%	92.5%
Density (Canopy cover)	Cold	Low (0-40%)	19.9%	62.8%
	Cold	Medium (40-60%)	20.3%	54.8%
	Cold	High (>60%)	13.8%	30.4%
	Cool Moist	Low (0-40%)	8.4%	33.7%
	Cool Moist	Medium (40-60%	25.3%	44.1%
	Cool Moist	High (>60%)	29.9%	64.6%
	Warm Dry - Montane	Low (0-40%)	33.6%	67.2%
	Warm Dry - Montane	Medium (40-60%)	27.2%	49.4%
	Warm Dry - Montane	High (>60%)	4.4%	19.9%
	Warm Dry - Pine Savanna	Low (0-40%)	61.3%	99.0%
	Warm Dry - Pine Savanna	Medium (40-60%)	0.0%	17.7%
	Warm Dry - Pine Savanna	High (>60%)	0.7%	24.0%

*The range shown is the middle 90% of the full range of variability calculated in the analysis of 30 runs of 1,000 years each

Table 2. Natural range of variation in patch size distribution*

R1 broad potential vegetation type	Patch Size (Acres)	Early-Seral (<10 in. diameter; % of PVT)	Mid-Seral (10-15 in. diameter; % of PVT)	Late-Seral (>15 in. diameter; % of PVT)
Cold	< 40	3% - 6%	11% - 16%	11% - 14%
	40-100	1% - 2%	4% - 8%	4% - 6%
	100-500	1% - 5%	6% - 14%	7% - 11%
	500-1,000	0% - 2%	2% - 6%	3% - 6%
	> 1,000	0% - 8%	3% - 16%	8% - 32%
Cool Moist	< 40	5% - 11%	11% - 14%	12% - 15%
	40-100	1% - 4%	4% - 6%	4% - 5%
	100-500	1% - 6%	6% - 10%	6% - 9%
	500-1,000	0% - 2%	2% - 5%	2% - 4%
	> 1,000	0% - 8%	4% - 15%	8% - 19%
Warm Dry - Montane	< 40	7% - 15%	10% - 16%	19% - 23%
	40-100	2% - 4%	2% - 4%	6% - 9%
	100-500	3% - 6%	2% - 5%	7% - 15%
	500-1,000	1% - 3%	0% - 2%	2% - 6%
	> 1,000	1% - 10%	0% - 4%	4% - 23%
Warm Dry - Pine Savanna	< 40	1% - 11%	0% - 9%	5% - 6%
	40-100	0% - 1%	0% - 2%	2% - 3%
	100-500	0% - 4%	0% - 5%	4% - 7%
	500-1,000	0% - 3%	0% - 3%	2% - 4%
	> 1,000	0% - 20%	0% - 21%	35% - 76%

*Patches are defined by a combination of seral stage and vegetation type for five patch-size categories. Results are shown here as the proportion of the specified Northern Region Broad Potential Vegetation Type containing the specified patch size and type. The range shown is the middle 90% of the full range of variability calculated in the analysis of 30 runs of 1,000 years each.

PRISM Assumptions and Model Formulation

Timber Suitability

For each alternative, we made a determination of "lands suited for timber production" according to the direction in the Forest Service Handbook (FSH 1909.12.61). In general, the process first identifies those lands that are not suited for timber production and leaves the rest as available for timber production management. Suitability analysis follows a two-stage process described in detail below. The first stage is to identify lands not suited for timber production based on legal, technical, and ecological context. Specifically, lands that are legally withdrawn (such as wilderness), cannot be harvested without causing irreversible damage to the land, or are not forested or not capable of re-growing trees once harvested are withdrawn at the first stage. This stage is constant and used as a basis for all alternatives, and is termed "lands that may be suited for timber production."

The second stage of suitability withdraws land from "lands that may be suited for timber production" based on desired conditions of land management designations, which can vary by alternative. Alternatives can vary land management designations such as recommended wilderness, special areas, research natural areas, and so forth. Some of these land designations

may have desired conditions incompatible with managing the land for timber production, in which case they are withdrawn from suitability for that alternative.

As described below, identifying suitable timber land depends, in part, on assessing the biophysical properties of the land (such as site productivity, soils, potential vegetation, or other factors). The available spatial data depicting this information is often derived from coarse-scale assessments, satellite imagery, and statistical models. Consequently, while broad-scale estimates of timber suitability are fairly reliable (for example, the total number of suitable acres within a given geographic area), there is far less certainty about the spatial precision and classification accuracy of any given acre (or pixel). Some areas will certainly be misclassified on our "maps" due to inherent error in the input data. As such, the purpose of this exercise is to model and estimate the acres of suitable timber land for broad-scale planning purposes, not to create precise maps of suitable timber lands for use in project planning or implementation. The final determination of timber suitability must consider plan direction but should be made on the ground at the project-level, using site-specific information and analysis.

Step 1: Identification of Lands that May be Suited for Timber Production

The first step of the timber suitability analysis consists of identifying lands that are not suited based on legal and technical factors.[3] If any of these factors apply to the land, the land is not suited for timber production. **These lands do not vary by alternative in the plan EIS.**

To address 36 CFR 219.11(a)(i) and (ii) – lands that have been withdrawn or prohibited from timber production – the areas in table 3 were subtracted from the total National Forest System land ownership area (about 3.04 million acres). The area eliminated was approximately 1,899,137 acres, about 63 percent, of the National Forest System lands, leaving roughly 1,140,136 acres remaining for consideration as suitable for timber production. In some withdrawn areas, timber harvest may be used as a tool to meet other resource objectives.

A detailed data analysis was conducted to address lands for which the technology is not currently available to harvest without irreversible soil damage; there is no reasonable assurance of restocking within 5 years after harvest; or the land is non-forest land.[4] The following ruleset in table 4 was determined to capture these factors. Acres eliminated with this step was approximately 458,239 acres. The remaining 681,904 acres (22%) of the CG National Forest System lands may be suited for timber production (table 5).

[3] described at 36 CFR 219.11 (a) (i), (ii), (iv), (v,) and (vi), and further described in sections 61.11 to 61.14 of FSH1909.12

[4] 36 CFR 219.11(a) (iv), (v), and (vi)

Table 3. Designated areas that have been withdrawn from timber production

Designated Area	Acres	Rationale for Not being Suitable for Timber Production
Designated Wilderness	1,047,141	The Custer Gallatin National Forest manages portions of the Absaroka-Beartooth Wilderness and the Lee Metcalf Wilderness. Designated wilderness areas are excluded from timber production and harvest. *Recommended wilderness* is NOT excluded in this step because it is re-evaluated as a part of revision; it would be excluded in step 2 and may vary by alternative.
Wilderness Study Area	144,071	The Custer Gallatin National Forest manages one congressionally designated wilderness study area, the Hyalite-Porcupine-Buffalo Horn Wilderness Study Area. Per the Wilderness Study Act, these areas are to be managed as wilderness until Congress decides whether to designate them as wilderness.
Research Natural Areas	22,714	The Custer Gallatin National Forest has 10 existing research natural areas. The designation of research natural areas precludes suitability for timber production.
Cabin Creek Recreation and Wildlife Management Area	34,804	The Cabin Creek Recreation and Wildlife Management Area was designated by the Lee Metcalf Wilderness Act in 1983. Public law 98-140, October 31, 1983, established the Cabin Creek area for the purpose of wildlife and recreation.
Additional Inventoried Roadless	643,961	The Roadless Area Conservation Rule does not allow for timber production to be a management objective.
Continental Divide Scenic Trail	3,877	The Continental Divide National Scenic Trail was designated by Congress in 1978. There is a half-mile buffer (1/4 mile on either side) that is not suitable for timber production.
Wild Horse Territory	1,298	The Wild Free-Roaming Horse and Burro Act of 1971 (P.L. 92-195), as amended by the Federal Land Policy and Management Act of 1976 and the Public Rangelands Improvement Act of 1978, established wild free-roaming horses as a part of the natural system. This area is not suitable timber production.
National Natural Landmarks	1,271	The National Natural Landmarks Program was established in 1962 to encourage the preservation of sites illustrating the geological and ecological character of the United States, to enhance the scientific and educational value of sites thus preserved, to strengthen public appreciation of natural history, and to foster a greater concern for the conservation of the nation's natural heritage. Three national natural landmarks are located on the Custer Gallatin. These areas are not suitable timber production.
Total Acres	1,899,137	(Not applicable)

Table 4. Additional areas eliminated[1]

Factor	Acres	Areas eliminated from Lands that May be Suitable
Non-forest land and lands developed for non-forest uses; Lands not suitable for timber production due to technology or site considerations, where harvest operations may result in either irreversible damage; Lands where adequate restocking within 5 years is not assured	458,239	A 33-foot total width, including buffer, was applied to roads, corridors, and railroads. All existing roads are assumed to be “improved”. Developed campgrounds, picnic areas, interpretive sites, cabin and lookout rentals, trailheads, ski areas, and visitor centers All lakes and streams in National Hydrologic Dataset. Smaller streams are left in as small inclusions. R1 Broad PVT[2] = Alpine, Grassland, Riparian/Wetland, Shrubland/Woodland, Sparse Adjusted PVT[1]= pifl, pial Percent Slope > 80% (PCT_SLP_AV >80% from VMap data)

1. See 36 CFR 219.11(a)(iv)(v)(vi)
2. See Reid et al. (2018)

Table 5. Acres that may be suited for timber production, by geographic area*

Geographic Area	Total NFS acres	May Be Suited Acres	% of Geographic Area
Sioux	164,460	65,958	40%
Ashland	436,148	196,124	45%
Pryors	75,067	34,145	45%
Absaroka Beartooth	1,353,438	104,071	8%
Bridgers, Bangtails, Crazy	204,998	61,315	30%
Gallatin, Madison, Henrys Lake	805,162	219,095	27%
Custer Gallatin	3,039,273	680,708	22%

*Slivers were manually cleaned up in the "may be suitable" feature class, and that resulted in a reduction of 1,196 acres
Note: NFS is National Forest System

Step 2: Identify Lands that Are Suited for Timber Production

In step 2, lands that *are* suited for timber production are identified by further subtracting lands that are not suited for timber production (based on specific plan components) from the lands identified as *may be* suitable (the results of step 1). Table 6 displays the lands that were removed due to plan components or area designations that vary across alternatives, thereby leading to different amounts of land suitable for timber production.

Table 6. Additional areas removed from lands that may be suitable for timber production based on the compatibility of timber production with the desired conditions and objectives for those lands

Area	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Eligible Wild & Scenic Rivers	12,821	13,808	13,808	13,808	13,808
Special Interest Areas	2,567	2,567	2,567	2,567	2,567
Riparian Management Zones	0	59,831	59,831	59,831	59,831
Recommended Wilderness	73	752	1,496	48,213	0
Backcountry Areas	0	21,414	32,862	2,339	0
Total Acres	15,461	98,372	110,564	126,758	76,206

Note: Acres of each category will not match total acres within that designation if lands have been removed in a previous step of the suitability analysis. For example, the vast majority of existing recommended wilderness or backcountry areas were within an inventoried roadless area, so most of these areas were removed via the process listed in table.

Here again, due to the scale of analysis and data limitations, there are small inclusions of unsuitable areas in areas mapped as suitable, and vice versa. Site-specific suitability must be determined at the project level. It is also important to note that the plan may allow for timber harvest for purposes other than timber production as a tool to assist in achieving or maintaining one or more applicable desired conditions or objectives of the plan to protect other multiple-use values, and for salvage, sanitation, or public health or safety. Examples of using timber harvest to protect other multiple use values may include improving wildlife or fish habitat, thinning to reduce fire risk, or restoring meadow or savanna ecosystems where trees have invaded.

The layer resulting after steps 1 and 2 depicts lands that *are suited* for timber production. The lands identified as suitable for timber production are listed by geographic area in table 7 and summarized in table 8.

Table 7. Acres and percent of each geographic area that are suited for timber production for each alternative

Geographic Area	Total NFS acres	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Sioux	164,460	65,958 (40%)	59,859 (36%)	59,859 (36%)	57,519 (35%)	59,859 (36%)
Ashland	436,124	196,123 (45%)	189,379 (43%)	189,379 (43%)	189,384 (43%)	189,529 (43%)
Pryors	75,067	32,888 (44%)	13,240 (18%)	13,240 (18%)	11,931 (16%)	28,635 (38%)
Absaroka Beartooth	1,353,295	96,744 (7%)	79,817 (6%)	79,817 (6%)	71, 241 (5%)	85,737 (6%)
Bridgers, Bangtails, and Crazy	205,025	59,027 (29%)	51,806 (25%)	44,118 (22%)	50,963 (25%)	51,806 (25%)
Madison, Henrys Lake, and Gallatin	805,299	214,504 (27%)	188,237 (23%)	183,732 (23%)	172,911 (21%)	188,937 (23%)
Custer Gallatin National Forest	3,039,269	665,247 (22%)	582,338 (19%)	570,146 (19%)	553,950 (18%)	604,502 (20%)

NFS = National Forest System

Table 8. Summary of suitability of lands for timber production

Land Classification Category	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
A. Total National Forest lands in the plan area	3,039,269	3,039,269	3,039,269	3,039,269	3,039,269
B. Lands not suited for timber production due to legal or technical reasons	2,358,561	2,358,561	2,358,561	2,358,561	2,358,561
C. Lands that may be suited for timber production (A−B)	680,708	680,708	680,708	680,708	680,708
D. Total lands suited for timber production because timber production is compatible with the desired conditions and objectives established by the plan	665,247	582,338	570,146	553,950	604,502
E. Lands not suited for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	15,461	98,372	110,564	126,758	76,206
F. Total lands not suited for timber production (B+E)	2,374,022	2,456,933	2,469,125	2,485,319	2,434,767

Landscape Classification

Model formulations in PRISM allow up to six map themes to delineate the landscape, a description of the vegetation types in the forest, and a description of the size class. The six map themes must be specific enough to allow for the plan direction of each alternative to be considered, yet not so specific as to cause the model to be more complex than the high-level planning effort we are analyzing. Together, combinations of these six “layers” in table 9 define the analysis areas used in the PRISM model formulation.

Table 9. Descriptions of layers used in the PRISM model

Layer (map theme)	Description
Geographic Area	Due to the diversity of the Custer Gallatin, two geographic areas are identified. The Montane Geographic Area ranges from the western edge of the forest (the Madison range) east to the Pryor mountains, and is distinguished by a diversity of tree species. The Pine Savanna Geographic Area includes the Ashland and Sioux areas, and are generally flatter, drier, and are primarily composed of the ponderosa pine cover type.
Proclaimed National Forest	Runs to determine the sustained yield limit are distinguished for each proclaimed national forest, with layer 2. This calculation reflects all lands that *may be suited for timber production*, consistent with the timber suitability analysis process described above. This run does not represent a planning alternative, but rather a baseline calculation that applies to all alternatives. This layer is also in analysis of the all alternatives except no action to ensure that volume harvested in a proclaimed national forest does not exceed the sustained yield limit of that national forest.
Management Area Groups	The map for management area groups (MAG) varies by alternative, according to the theme and desired conditions of the alternative. These layers influence the calculation of the projected wood sale quantity and projected timber sale quantity, as well as which type and how much management may occur.
Wildlife Condition	Key wildlife habitats (grizzly bear and Canada lynx) are identified where certain constraints may apply. These habitats may overlap, and are consistent for all Alternatives.
Vegetation Type	Combinations of potential vegetation and cover type. The spatial layer (VMap) labels some polygons *transitional* where recent disturbance has removed forest cover, but regeneration is expected. Plots with non-forested habitat types or disturbed areas not expected to regenerate are also excluded.
Structure Class	Combinations of size and density class

Available Treatments

Treatments in PRISM are aggregated into three broad silvicultural categories: Even-aged management types that result in stand-level regeneration (EA), uneven-aged types that do not result in stand-level regeneration (GS), and prescribed fire types that do not result in stand-level regeneration or timber volumes (PB). There is also a no management, natural growth option available for each stand by default (NG). Table 10 displays which management area groups were allowed these different treatments. This ranges from natural growth allowed everywhere to even-aged only allowed on the suited for timber production lands. Maximum amounts of these treatments and/or proportions of treatments allowed in these different management area groups is described in the constraint section below.

Table 10. Allowable silvicultural methods (treatments) by management area group (MAG)

Silvicultural Method	MAG 1	MAG 2	MAG 3	MAG 4	MAG 5	MAG 6
NG	yes	yes	yes	yes	yes	yes
GS	no	no	yes	yes	yes	yes
PB	no	yes	yes	yes	yes	yes
EA	no	no	no	no	yes	yes

*See previous paragraph for silvicultural method abbreviations

Each of these treatments can be tailored to the vegetation type it is applied to through activity and timing information in the yield tables. Activities result in changed vegetation, timber yields, and/or costs. For example, in lodgepole types the EA treatment may be used to represent a clearcut activity, whereas in spruce/fir types, the EA treatment could represent a shelterwood activity. Examples in the Custer Gallatin model include precommercial thinning, commercial thinning, harvest-related prescribed burn, and planting. Table 11 displays a full list of activities used in PRISM yield tables on the Custer Gallatin.

Table 11. List of activities found in yield tables

Activity Label	Activity Code
Broadcast Burn	bb
Insect infestation – bark beetle or other	bs
Clearcut with broadcast burn	cs-bb
Commercial Thin	ct
Commercial Thin with broadcast burn	ct-bb
Commercial Thin with underburn	ct-ub
Group selection with commercial thin and underburn	gp-ct-ub
Mixed severity fire event	msf
Natural Attrition	na
Grow-only/no action	no action
Precommercial Thin	pct
Planting regeneration*	plant
Seed cut (shelterwood) with broadcast burn	sc-bb
Lynx harvest related treatment	ss
Underburn	ub

*Plant activity is for U type. Planting costs for other types are linked to other activities such as “cs-bb”

Natural Disturbances

There are two types of natural disturbances recognized by the PRISM model, including stand-replacing and non-stand-replacing. Stand-replacing disturbances result in a newly regenerated stand condition. The number of stand-replacing disturbance types is unlimited in the model; however, the Custer-Gallatin only used one: stand-replacing fire. There were two non-stand-replacing natural disturbances used in the model; namely, mixed-severity fire (MS) and insect disturbance (BS). Unlike management treatments, natural disturbances are not a scheduling decision that the model gets to choose. Rather the model is forced to recognize natural disturbances as they are projected to occur in the future.

The amount of natural disturbances (SR, MS, and BS) was determined using Monitoring Trends in Burn Severity data for the past decade and historical records of insect outbreaks. The amount of wildfire was assumed to double relative to the previous three decades. Disturbance levels were modeled in PRISM, requiring a certain percentage of acres to undergo natural disturbance every decade. The following assumptions were used in this modeling.

- ***Stand-replacing disturbance*** (SR) was defined by vegetation type and size/density class. Numbers are based on historic records, anticipated burning levels into the future, and knowledge about burn vulnerabilities by density classes. Generally, the higher density classes are more at risk of burning with stand-replacing fire. These numbers result in stand-replacing fire that is approximately 11,500 acres per year in early decades, but reaches equilibrium at about 9,000 acres per year in later decades as the forest moves to lower density classes through time. Vegetation was expected to regenerate as the same type that burned, with the exception of the Prairie Ponderosa Pine type (B) which does not always have a seed source and thus remains unforested for a time (convert to U type).
- ***Mixed Severity fire*** (MS) is allocated by initial type and size, in proportion to their historic occurrence within the last three decades. The fire interval assumption for mixed severity fire is every 50 years.
- ***Insect disturbance*** (BS) includes insect effects for most types. Lodgepole and other pine types get bark beetle (older sizes are more susceptible), Douglas-fir gets a defoliator. The interval for outbreaks is every 60 years starting in decade 4 to capture the episodic nature of mountain pine beetle infestations, acknowledging that the latest episode has occurred fairly recently within the last 20 years. Note that insect outbreaks are not modeled in smaller size classes due to the relative resilience of these types.
- ***Disturbance Distribution Constraint****:* Disturbances are equally portioned by their occurrence in the landscape. For instance, if the input is 10 percent of Vegetation Type Low Density burns with stand-replacing fire, all acres meeting that criterion at each time step will lose 10 percent of their acres to stand-replacing fire regardless of their spatial context. For mixed-severity fire and insect disturbances, if the input is 10 percent of a certain Vegetation Type and Structure Class gets the disturbance, all analysis areas with that type, regardless of their spatial context, will have 10 percent of their acres allocated that regime. Furthermore, there were minimum constraints on the amount of mixed severity fire in each decade to ensure that the disturbance was spread out over time (approximately 75,000 each decade).

Management Costs

The 2012 Planning Rule and Directives at Forest Service Handbook 1909.12, chapter 60, section 64.32 dictate that timber quantity projections must take into account the fiscal capability of the planning unit. This is accomplished in PRISM by recognizing the costs associated with the different management activities associated with treatment methods and ultimately weighing them against the unit's projected budget. Management activity costs incurred per acre of treatment represent an average cost that mixes acres of full treatment with acres without treatment. For example, when weed treatments occur, it costs approximately $141 per acre. However, these costs are incurred only about 15 percent of the time, which makes average per-acre weed costs $21.15. The assumptions used to build the table are listed below.

In addition to these per-acre costs, there is a per-volume cost associated with **planning and administering sales**. This cost is $1.24 per cubic foot of sawlog volume and is based on regional office budget allocations to the Custer Gallatin, which encompass the variability in project location, cost, complexity, logging system, and other factors. Unit cost data comes from a 3-year

budget allocation average for timber. The Custer Gallatin National Forest is typically funded at the constrained budget request level for timber and fuels dollars. The per-cubic foot cost includes the cost of litigation. Litigation incurs an administrative cost that can result in 0 volume. Therefore, that cost is amortized to projects that result in volume.

Reforestation costs are based on local costs developed from planting contracts over the previous 6 years. For timber-related sales, regeneration costs, including site preparation treatments such as prescribed fire, are typically funded by Knutson-Vandenberg (KV) trust funds. Therefore, harvest-related regeneration costs do not count against the budget constraint in the PRISM model. Harvest activities on the Custer Gallatin National Forest typically generate a natural regeneration certification need on approximately 20 percent of the acres harvested and on 10 percent of the acres harvested a planting need is generated. Most of the recent harvest activities on the Custer Gallatin are predominantly intermediate treatments, which retain minimum or greater tree stocking requirements following harvest.

For insect, mixed-severity fire, and stand-replacing fire disturbances, 90 percent of the acres incur a natural regeneration cost at $21 per acre and 10 percent require full planting costs at $702 per acre. The regeneration need is generated from a natural disturbance event and not a prescribed harvest activity so KV funding is not generated for funding of reforestation activities. Reforestation efforts from these prescriptions would be funded out of the constrained budget. Regeneration needs from these prescriptions typically generate a natural regeneration need on approximately 50 percent of the acres affected and a planting need is generated on 20 percent of the acres affected. [Note: Implementation of this is for every acre of disturbance, 90 percent is natural regeneration, of which 50 percent incurs a cost (0.9 x 0.5 = 0.45 acre) and 10 percent is planting, of which 20 percent incurs a cost (0.1 x 0.2 = 0.02 acre)].

Timber Stand Improvement (TSI) costs are based on local costs from the Custer Gallatin's 3-year budget data call and sale specific KV plans. KV can cover timber stand improvement but is nonessential and therefore not assumed. The production coefficient is based on history by vegetation type of how often these treatments actually occur on the ground, as documented in detailed prescriptions.

Road reconstruction/administration reflect local costs for road work associated with timber or fuels projects that are counted against the constrained budget. Purchaser-related road work, including new construction and decommissioning of roads associated with projects, is assumed to be $0 against the constrained budget. Costs borne by the purchaser are inherently included in log values. New road construction is done only minimally on the Custer Gallatin National Forest.

Prescribed burning reflects all costs for preparation and burning (excluding site-prep burning), including intermediate entries as part of a harvest prescription and ecosystem burns not tied to harvest. While burning (of non-activity fuels) associated with harvests can be eligible for KV, it is non-essential and therefore not assumed. The 3-year average of treatment unit costs were pulled from the budget data call for wildland urban interface ($236 per acre) and non-wildland urban interface ($107 per acre).

Weed treatment costs reflect work done pre and/or post vegetation management. The cost assumes an average of treatment types based on the contract documentation ($49per acre for

roadside; $74 for off-road; $225 for backpack), plus $25 per acre for the cost of herbicide for a total $141 per acre. Weed treatments accompany harvest or burning on approximately 15 percent of the acres treated.

Whitebark pine surcharge is designed to capture the costs of implementing activities within the vegetation types that contain whitebark pine as a component. Activities such as protection of leave trees, inaccessibility, higher reforestation costs (labor, site prep, etc.) are $321 per acre more expensive in this vegetation type. Approximately half of the acres of this vegetation type I have whitebark pine and incur this cost.

Objective Function

The objective function value of the PRISM model is a mathematical measurement of the quality of a solution. To analyze the Custer Gallatin Forest Plan alternatives, the objective function was the cumulative deviation from desired conditions across all vegetation types, structure classes, and time periods. The PRISM model then searches for a forest-level management strategy across all vegetation types and decades that minimizes the objective function value, or total deviation from desired conditions. Deviations in the first five decades of the projection had a value of 1 for every acre either above or below the desired condition. Deviations for decades 6-15 were assigned a value of 0.5. Using these varied weights, the model places more emphasis on short-term DC attainment than longer-term attainment when the actual conditions of the landscape are much less certain. Desired condition were stratified into vegetation type and structure class.
Resource Constraints

Constraints in the PRISM model define limitations on scheduling management activities to improve the value of objective function (barriers to achieving desired conditions for vegetation). Many of these constraints are used to ensure compliance with laws and policy, as well as to ensure sustainability of other resources such as wildlife, watershed, and the economy. This section describes the constraints used in the PRISM model.

Budget Constraint

The projected timber sale quantity and projected wood sale quantity must be calculated within the fiscal capability of the planning unit. This is accomplished by imposing budget limitations on scheduling management activities. The budget constraint was based on a 3-year average of actual timber and fuels budgets for fiscal years 2014, 2015, and 2016, at $2,990,726 per year. The timber portion of this budget ($1,030,393) supports environmental analysis teams, program management, sale administration and preparation, preconstruction and construction engineering cost, and prescribed burning activities. In the model, the timber budget was augmented to include funding for fuel treatments, since they may contribute volume toward the projected timber sale quantity and projected wood sale quantity and also affect vegetation desired conditions. The three figures used in the calculations are as follows:

Non-wildland urban interface fuels:
$696,000 + WUI fuels: $1,264,333 + timber: $1,030,393[5] = *$2,990,726* total

[5] NFRR timber was reduced by $75,000 to subtract the cost of fuel/firewood sales, which are not directly modeled in this exercise

The following proportions are applied to ensure the budget is allocated in the appropriate landscapes:

- Ensure that costs in management area groups 3 and 5 (wildland urban interface) add up to at least $1,264,333 or 42 percent of all dollars spent in the time period. [Constraint applied to Periods 1-5 in the model]
- Ensure that costs in management area groups 4 and 6 (non-wildland urban interface) add up to at least $696,000 or 23 percent of all dollars spent in the time period. [Constraint applied to Periods 1-5 in the model]
- The remainder of funding can be applied anywhere in management area groups 1 through 6.
- These proportional constraints were applied to all Alternatives regardless of budget (see below) for the first 5 decades of the model. Later decades were proportionally unconstrained, and the budget could be applied anywhere.

Harvest Policy Constraints

There are four harvest policy constraints applied to the model, constructed to approximate the direction set by the National Forest Management Act and the Planning Rule; non-declining yield, proportional harvest, management area volume, and ending inventory.

- *Non-declining Yield:* The non-declining yield constraint requires the volume in each decade to be at or above the volume in the previous decade. It ensures that harvest is at or below the Sustained Yield Limit, and contributes to a sustainable timber sector of the economy.
- *Proportional Volume*: There is a proportional volume constraint on each side of the national forest (Custer versus Gallatin); a minimum of 20 percent of the volume in each decade must come from each side of the national forest. This constraint contributes to a sustainable economy at local levels; a finer scale than the national forest as a whole.
- *Management Area Volume*: The model was constrained in the first 5 decades to schedule at least 80 percent but no more than 95 percent of the volume from management area groups 5 and 6. Between 5 and 20 percent of the volume could come from management area groups 3 and 4. Note there are no volume producing prescriptions allowed in management area groups 1 and 2. This constraint is intended to allow for restoration activities and prevent timber production in areas not suited for timber production.
- *Ending Inventory*: An ending inventory constraint is applied using the standing volume (cubic feet) calculated in the final planning period (15). This must be greater-than or equal the average standing volume of the prior 10 decades (5-14). This prevents the model from artificially over-harvesting in the final period of the simulation.

Dispersion of Openings

To distribute treatments across the landscape, this constraint limits the amount of area that can be in an opening at one time. The amount of area in openings is limited to less than 30 percent of each management area group, excluding management area group 1, since there is no assumed management potential in management area group 1. Openings in management area group 1 are created exclusively by natural processes and are therefore not a management

limitation. Openings were modeled by entry as shown in table 12, where the effective opening size was assigned at the time the activity occurred. The opening recovers over 40 years at the rates shown in table 13. Opening recovery rates reflect the gradual recruitment of trees through time. Note that natural disturbances contribute to the opening constraints and therefore must be considered when scheduling management activities that create additional openings.

Table 12. Openings modeled by treatment

Treatment	Effective Opening Size (initial)
Prescribed fire only (PB) – low/mixed severity bb entry	0.45 acre opening for each acre burned
Stand Replacing wildfire (SR)	0.85 acre opening for each acre burned
Mixed Severity wildfire (MS)	0.65 opening for each acre burned
Severe Bark Beetle (BS)	0.30 opening for each acre infested
Uneven-aged/group selection (GS)	0.30 acre opening for each acre harvested
Even-aged clearcut or shelterwood (EA) – at final harvest activity	0.95 acre opening for each acre harvested
Existing seedling/sapling stands	0.75 opening for each acre

Table 13. Recovery of openings through time

Decade After Harvest	Percent Effective Opening
1	100 %
2	75 %
3	50 %
4	25 %
5	0 % (fully recovered)

Constraints on Prescribed Burning

To address operational capacity, air quality standards, and weather window limitations, the amount of prescribed burning was limited in the model to 10,000 acres or less every year. Prescribed burning includes acres burned as a part of site preparation activities after harvest, as well as acres burned for fuels reduction, wildlife habitat improvement, or other reason. There were specific distribution requirements for where prescribed burning must occur, described by broad potential vegetation type.

- Cold: Maximum 1,500 acres per year and no more than 15 percent of all prescribed burn acres
- Cool-Moist: Maximum of 4,000 acres per year and no more than 40 percent of all prescribed burn acres
- Warm Dry Montane: Maximum of 3,000 acres per year and no more than 30 percent of all prescribed burn acres
- Warm Dry Pine Savanna: Maximum of 5,000 acres per year and no more than 50 percent of all prescribed burn acres

Constraints on Wildlife Habitat

Potential habitat areas for both grizzly bear and lynx were one of the map layers used to delineate the landscape into planning units (analysis areas) in the PRISM model. Constraints were considered for these species to reflect direction in the forest plan.

- *Grizzly Bears*: For coarse-scale modeling purposes, a constraint for grizzly bears is not needed in the Custer-Gallatin PRISM model due to the small amount of grizzly bear recovery zone eligible to be selected for management. Most of these areas are in management area group 1 or 2 where little to no treatment can occur.
- *Lynx*: Specific constraints in lynx habitat are applied to comply with the Northern Rockies Lynx Management Direction, as shown in table 14. "Lynx habitat" here refers to the envelope of potential habitat, regardless of its suitability for lynx at the time of treatment.
    - Constraints are applied to both "occupied" and "unoccupied" habitat to be consistent with the direction of the Northern Rockies Lynx Management Direction.
    - A maximum of 15 percent of the lynx habitat (occupied + unoccupied) can be treated with an even-aged activity or burned with stand-replacing fire in management area groups 2, 4, and 6 in any decade. This implements standard 1 of the Northern Rockies Lynx Management Direction, which limits openings to 30 percent within a two-decade span. Management area group 1 (wilderness) is exempt from this constraint since there is little or no management that occurs in wilderness. Management area groups 3 and 5 (wildland urban interface) are not constrained so that treatment may occur around communities for protection and safety purposes.
    - No precommercial thinning is allowed in cool moist covertypes within lynx habitat (occupied and unoccupied). This implements standard 5 of the Northern Rockies Lynx Management Direction.
    - Nothing classified as lynx multistory (within occupied or unoccupied lynx habitat) can be treated with any treatment method. Lynx multistory conditions were identified in the yield table development process and supplied for PRISM modeling. This implements standard 6 of the Northern Rockies Lynx Management Direction.

Table 14. Constraints in occupied and unoccupied lynx habitat

Prescription	MAG	Vegetation Type	Period	Constraint
EA, PB	MAG 2, MAG 4, MAG 6	Any	Each decade	No more than 15% of each management area group harvested or with a final broadcast burn in a prescribed burn regime. SR fire acres should also factor into the 15%.
Any	Any	CMLP, CMSF	Any	No precommercial thinning activities allowed.
EA, GS, PB	Any	Any	Any	Nothing classified as lynx multistory habitat can be treated.

Note: Prescribed fire only (PB) – low/mixed severity bb entry; Stand Replacing wildfire (SR); Uneven-aged/group selection (GS); Even-aged clearcut or shelterwood (EA) – at final harvest activity

Constraints on Acres Treated

Several constraints on treatment levels and methods were used to implement projected targets, planned activities, and other recognized best practices. To meet the intent of management intensity by management area group and account for operational constraints, prescriptions and activities are allocated spatially as follows:

- **Minimum acres treated:** A minimum acres per year must be treated in order to meet fuel reduction targets. Multiple treatments on the same acre count individually. For example, a thin followed by a slash burn on the same acre would count as two acres worth of treatment. This constraint varied by Alternative, from 5,000 (Alternative E) to 8,000 acres (Alternative D). Alternatives A, B, and C were constrained at a minimum of 6,000 acres per year. These constraints were enacted for the first 5 decades of the model projection.
- **Pine Savanna Commercial Thinning:** Limit the proportion of commercial thins in the pine savanna systems to 70 percent or less of the total commercial treatments in the pine savanna type.
- **Montane Warm Dry Thinning:** Limit the proportion of commercial thins in the warm dry montane to 65 percent or less of the total commercial treatments in the montane warm dry type.
- **Cool Moist Thinning:** Limit commercial thinning in cool moist non-lodgepole types to less than 70 percent of the total commercial treatments in the cool moist.
- **Cool Moist Lodgepole Thinning:** Limit thinning in cool moist lodgepole to less than 25 percent of the total commercial harvest acres in the cool moist type.

PRISM Results

The PRISM model was used to calculate timber volumes and management activities to move the forest toward vegetation desired conditions, while at the same time maintaining wildlife, watershed, and economic sustainability as described above. Outputs for each alternative are shown in table 15.

Table 15. Output volumes and harvest activities scheduled; average of five decades of the PRISM projection

Item	Alt. A	Alt. B	Alt. C	Alt. D	Alt. E
Intermediate (acres/year)	965	967	958	839	699
Fuels (acres/year)	1,776	1,755	1,768	3,027	1,296
Regeneration (acres/year)	495	469	465	333	597
Prescribed Fire (acres/year)	2,765	2,809	2,809	3,801	2,408
Total Area Treated (acres/year)	6,000	6,000	6,000	8,000	5,000
Sawtimber meeting utilization standards (mmbf/year)	10	10	10	6	15

Modeling Future Vegetation Conditions with SIMPPLLE

Whereas the PRISM model is used to develop an optimal treatment schedule to move vegetation towards desired conditions, the SIMPPLLE model is used to simulate vegetation dynamics in response to these treatments as well other disturbances on the landscape that occur in an unpredictable manner. While PRISM assumes that future disturbances occur in a predictable manner (see table 16 and table 17), in reality managers cannot accurately predict when and where disturbances will occur during the lifespan of the forest plan. Therefore, for each alternative, treatments scheduled by the PRISM model are modeled on the landscape within a spatial context of unpredictable futures to measure combined effects of treatment and disturbance on the vegetation condition of the landscape into the future. Multiple simulations for each alternative create a range of possible futures that can be evaluated for trends and effects. For each alternative, 20 simulations of five decades each were modeled in SIMPPLLE.

Landscape Current Conditions

The current condition of the landscape for SIMPPLLE was compiled from the GIS layers used for the PRISM model. This included the landscape descriptor layers described previously. The layers were all the same except for the management area group designation of each alternative. Vegetation detail in SIMPPLLE is quite a bit finer-scale than in PRISM, but the vegetation information in SIMPPLLE can readily be aggregated into the types used by the forest plan and the PRISM model.

In SIMPPLLE, the landscape was simulated in three geographic areas; the Western Montane area consisting of the Madison, Bridger, and Bangtail mountains, the Eastern Montane, consisting of the Absaroka, Beartooth, and Pryor ranges, and the Pine Savanna, consisting of the Ashland and Sioux areas. These landscapes are simulated with two-acre pixels and they include areas of forest ownership, private inholdings, and a buffer around the landscape to allow for simulated fire spread from starts outside the forest boundary.

Treatments

A key component of using SIMPPLLE to depict the future condition is to incorporate projected vegetation treatments that would occur on the landscape under each alternative. To accomplish this, PRISM reports the management schedule of activities for each analysis area for the first five decades. PRISM schedules treatments by (a) activity type, (b) land allocation and (c) time period. Activity types are prescribed burning, uneven-aged prescriptions (such as group selection), thinning (both commercial and precommercial) and even-aged activities such as clearcutting and shelterwood harvests. Land allocation is analogous to the “analysis areas” described in the PRISM document. It is a combination of geographic area, administrative forest, management area group, wildlife habitat classification (lynx, grizzly, both, or neither), existing dominance type, and existing size/structure. There are approximately 1,700 uniquely recognized land allocations in each alternative. Treatments schedule by PRISM for the first five time periods are modeled in the SIMPPLLE model for each alternative.

To integrate the two models, the land allocation map (analysis areas) for each alternative was used to assign the AA code to each pixel in the SIMPPLLE model. A treatment schedule input file for SIMPPLLE was developed for each of the three geographic areas for each alternative based

on the PRISM treatment type and timing schedule of each analysis area. Land allocations/AA codes were not always spatially contiguous, and in cases where an AA code occurred in more than one geographic area, acres of the scheduled treatment were allocated proportionally based on the abundance of the AA acres in each geographic area.

Assumptions of the resulting SIMPPLLE condition (type/size/density) were developed for each activity, and were adopted from the Helena Lewis and Clark SIMPPLLE model. These same assumptions were used to modify SIMPPLLE conditions following past and recent activities for input file creation. Generally, even-aged treatments (clearcut, shelterwood) regenerated the stand, and intermediate treatments reduced the density and accelerated the stand consecutively.

Future Fire and Climate

As explained in detail below, future climate for this analysis was modeled by assuming that all future time periods would experience a fire level (overall acres burned) and mix of severities approximately two times the levels seen in the recent past. Thus, one key impact of climate change—change to disturbance regimes—was modeled by calibrating fire assumptions rather than directly fitting a set of climate assumptions to the future. The following documents rationale and decisions made regarding modeling future fire regimes.

Area Burned

Projections for fire activity in the planning area under future climate scenarios have been accomplished with both statistical and mechanistic models. For example, a statistical modeling considering climate variables only, not fuel (vegetation) characteristics, was completed for the Greater Yellowstone Ecosystem (Westerling et al. 2011). Westerling et al. (2011) projected changes in annual area burned and fire return intervals driven by climate scenarios from three global climate models under a medium-high emissions scenario (A2, similar to the RCP8.5 scenario). By 2075 annual area burned was predicted to exceed 1988 levels, with years with no large fires becoming rare by 2050. Mechanistic models include fuel characteristics such as type, abundance, and moisture content as dynamic components that influence modeled fire behavior. Clark et al. (2017) used the mechanistic model FireBGCv2 to project future fire regimes under three future climate simulations (A2-low, A2-avg, and A2-high) for a landscape in Yellowstone National Park. Annual area burned was projected to increase between 1.2 to 4.2 times more than historical simulation values, under the coolest and warmest climate scenarios respectively. Due to the uncertainty in future climates, the relative simplicity of statistical modeling approaches, and the compounded error from model limitations, assumptions, and uncertainties in the mechanistic modeling, the levels of uncertainty are high for future fire projections.

These results are consistent with other studies in the western United States showing human-caused climate change has led to drier fuels and a significantly longer fire season, resulting in a doubling of forest fire area in the period 1984 to 2015 than would be expected in its absence (Abatzoglou and Williams 2016). Recent human-caused emissions of greenhouse gases are the highest in history and climate trends will continue to be warmer and drier in the planning area (Halofsky et al. 2018a, Halofsky et al. 2018b). As such, the area burned in the SIMPPLLE model in future decades represents a 100 percent increase, or two times the average area burned per decade during the period 1986-2015 based on Monitoring Trends in Burn Severity data. Based

on the recent literature, this represents as a conservative estimate and falls as an average of the results below.

Table 16. Studies related to future fire assumptions

Source	Reference Period	Model period	Results
(Spracklen et al. 2009)	1980 to 2004	2046 to 2055	175% increase in area burned for Rocky mountains forest. Little change for Eastern Rocky Mountains/Great Plains
(Yue et al. 2013)	1980 to 2004	2051 to 2063	Rocky Mountain Forest: 71% increase Eastern Rocky Mtns/Great Plains: 62% increase
(McKenzie et al. 2004)	1916 to 2002	2070 to 2100	Area burned increased by factor of 3 in Montana
(Riley and Loehman 2016)	1992 to 2010	2030 to 2059	Burn probability increase of 50% in northern ID
(Clark et al. 2017)	No specific years	Mid-21st century	1.2 to 4.2 times more burned area in Yellowstone

Fire Size Distribution

Large fire probability is another important parameter to estimate. If the number of fires increases by 100 percent, the frequency of large fires (more than 10,000 acres) will also increase 100 percent. This is a conservative estimate, based on the following literature:

Table 17. Studies related to fire probability

Source	Reference Period	Model period	Results
(Barbero et al. 2015)	1980 to 2004	2041 to 2070	-Very large fires (more than 5,000 hectares) increase by a factor of 4 in the Montane. -Very large fires (more than 5,000 hectares) increase by a factor of 6 in the Pine Savanna.
(Westerling et al. 2011)	1951 to 1990	2005 to 2099	In the Greater Yellowstone Area, “Fire seasons comparable to 1988 became more frequent, with between 1 and 5 such events occurring between 2011 and 2050. After 2050, all models predicted that annual area burned would exceed 100,000 ha during most years.”

Fire Severity

For fire severity, the literature is mixed. (Parks et al. 2017) suggest that cold and moist forest types will see a reduction in severity and dry forests will see an increase by 2100. However, (Parks et al. 2016) suggest that fire severity is predicted to decrease throughout the west. Unfortunately, recent papers that predict future increases in area burned do not quantify severity (Westerling et al. 2011, Barbero et al. 2015) or make simplified assumptions based on the historic fires (Spracklen et al. 2009, Yue et al. 2013). Moreover, historically, an increase in area burned does not necessarily mean that these fires burn with higher severity (Kitzberger et

al. 2017). Given the uncertainty in the literature, we will maintain the current distribution from MTBS of low/mixed/high into the future.

Reburning

Parks et al (2018) suggested a range of potential reburning of roughly 20 to 30 years in western Montana forests. This did not account for fire severity, which could influence the reburn potential. Based on expert opinion for the eastern Montana ponderosa prairies, reburn potential has been seen at 3 to 5 years (Studiner 2018). Because SIMPPLLE uses a decadal time series for modeling, a reburn of 20 years for montane and 5 years for pine savanna was used.

Baseline Conditions

Monitoring Trends in Burn Severity (MTBS) initiative represents the most accurate and consistent data on fire size and severity in recent decade. Unfortunately, it does not have data before 1984. **As such, the period from 1986-2015 will be used to represent the "current" fire regime.** This would include 1988, which is a fire year that we will see more frequently in the future (Westerling et al. 2011). Data used only includes burned acres (MTBS severity codes 2 through 4).

Calibrating Fire in SIMPPLLE

Fire calibration for the analysis happened in two stages. In the first stage, the overall level of fire by broad potential vegetation type was adjusted to match the expected fire activity. To simplify the analysis process and emulate actual fire suppression success rates, the fire suppression logic option in SIMPPLLE was not used. Rather, weather-ending probabilities at the Class A level (< 0.25) were adjusted to emulate the effect of successful fire suppression. This was a trial-and-error search and resulted in different suppression rates by broad potential vegetation type.

The second step of the calibration was to adjust fire activity to the expected severity mix. To do this, we examined which spread rules in SIMPPLLE were most commonly used to model fire on the landscape. Typically, these rules were rather general in nature. Consider a rule such as, "if the site has trees, the fire will spread with a stand-replacing severity". This rule may be split to recognize circumstances where fire spread would be a different intensity; for example, sites with a lower density might have a lower severity, or different potential vegetation types might burn differently, or different sizes, species, elevational position, etc. Fire spread rules were revised and refined until the expected burn severity mix by broad potential vegetation type was generally achieved.

Insects and Diseases

Insect and disease outbreaks were modeled in SIMPPLLE to account for vegetation changes not accounted for by succession, fire or treatment. The probability of occurrence varies by species, size, density, and disturbance history. Changes to species composition, size class, and/or density were associated with these infestations according to relevant literature and expert opinion as described in the project record. SIMPPLLE was also able to capture some of the episodic nature of these disturbances, by recognizing historic trends in increased susceptibility of certain species after a non-lethal fire event, or resilience of a species for a period of time following an outbreak. Probabilities of occurrence and effects of these disturbances is detailed in the project record.

Successional Pathways for Analysis Modeling

Analysis pathway modifications were made to better match the growth times and successional trajectories from the yield tables used for PRISM modeling. The Forest Vegetation Simulator (FVS) was used to project the influence of different potential management actions (such as prescribed fire, group selection, clearcut with reserves, etc.) on the vegetation types of the Custer-Gallatin. These projections also included a "natural growth" run that included no management and no disturbance, which described how long a stand needed to grow through the different successional stages and size classes. These results were compiled in a set of yield tables, which described, among other attributes, the timber volumes and vegetation conditions according to the Northern Region classification system. Upon closer examination, it was clear that in some instances, the amount of time it took to grow from a pole-sized (5-10 inches) stand to a medium stand (10-15 inches) and a medium stand to a large stand (15-20 inches) was longer in the Forest Vegetation Simulator-derived yield tables than in the default SIMPPLLE assumptions. This is largely due to a difference in classification systems, where SIMPPLLE historically has recognized when the largest trees in the stand grow in to the size class, and the Northern Region classification system quantifies size by considering the average size of all trees in the stand (basal area weighted mean diameter). Therefore, the pathways in the SIMPPLLE model were adjusted to better reflect the Northern Region classification system and the assumptions used in the PRISM scheduling model. Adjustments were dependent on the density class the stand was growing from and the size class the stand was growing into. The details of these assumptions are described in the project record.

SIMPPLLE Results

The SIMPPLLE model is used to project vegetation conditions on the forest 50 years into the future for each alternative. The treatments scheduled by PRISM are applied over this time period. The model was run 20 times for each alternative to account for the unpredictable nature of fires and other disturbances.

Results presented here display the range of projected outcomes for forest structure (figure 2 and figure 3), species dominance (figure 4) and patch size distribution (figure 5 through figure 8). In the end, the range in outcomes between alternatives was relatively narrow, mainly due to the low levels of treatments projected by any alternative. Therefore, the range bar in the figures below at each point in time represents one standard deviation across all model runs and all alternatives. In each figure, Decade 0 represents current conditions. The shaded area represents the range of desired conditions. Generally, more distant projections into the future (Decade 4 and Decade 5) show a broader range of possible vegetation conditions as uncertainty increases.

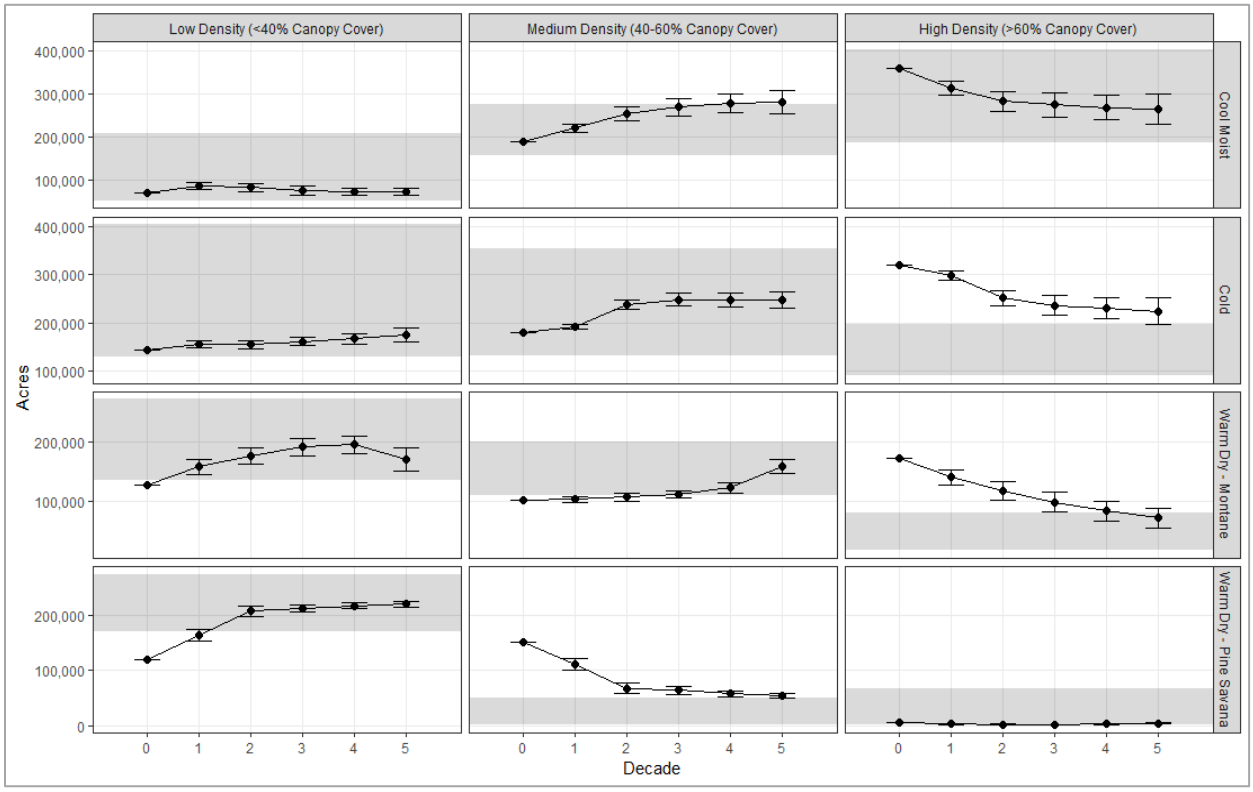


Figure 2. Projected density conditions for all alternatives measured against the desired conditions

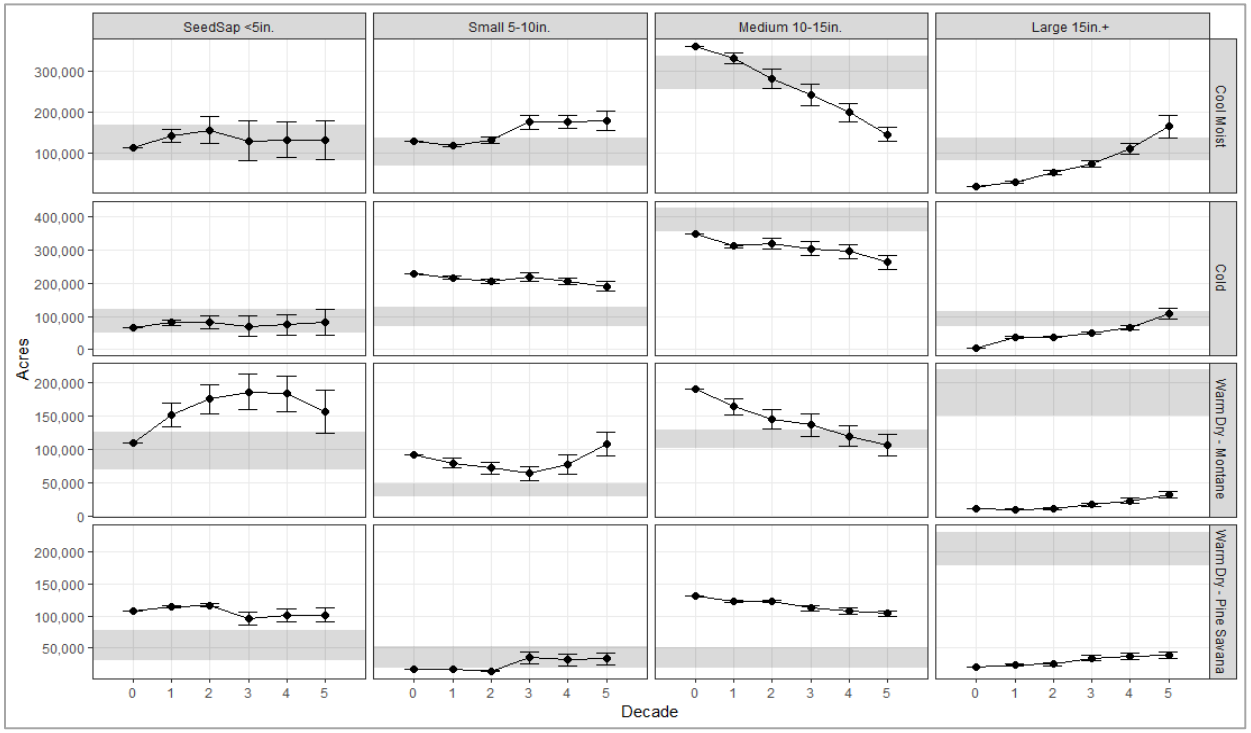


Figure 3. Projected size class conditions across all alternatives measured against desired conditions

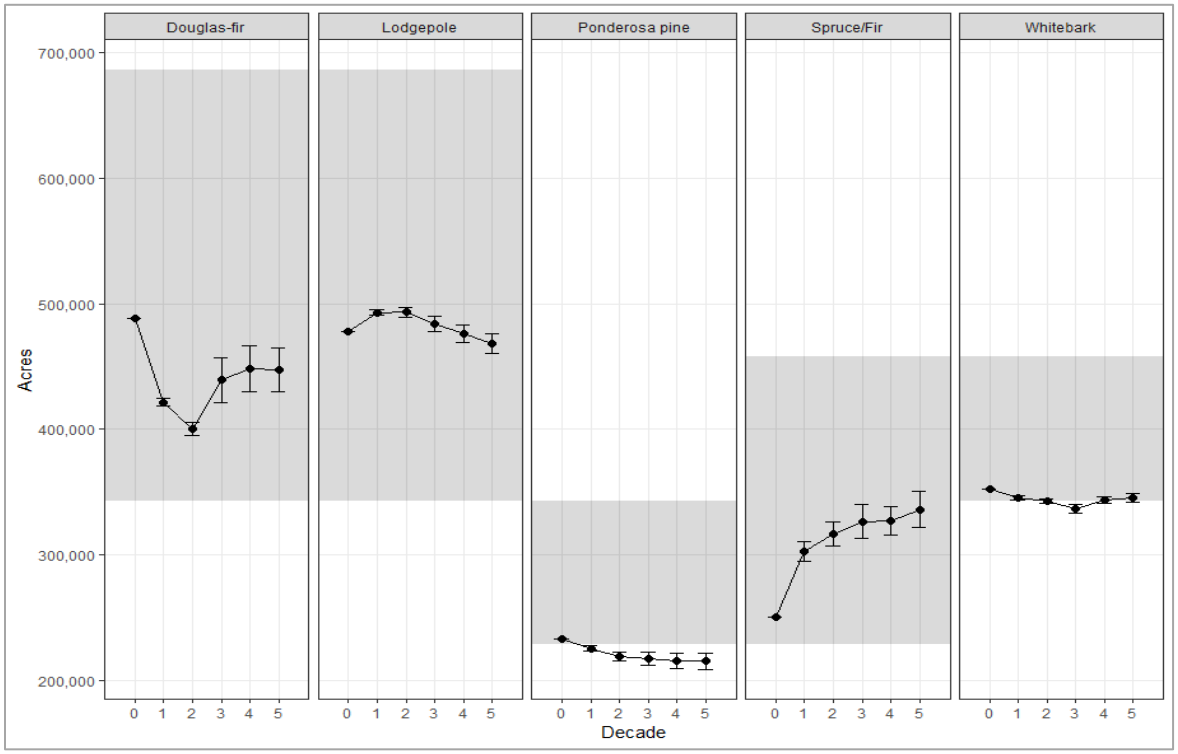


Figure 4. Projected species dominance across all broad potential vegetation types for all alternatives measured against desired conditions

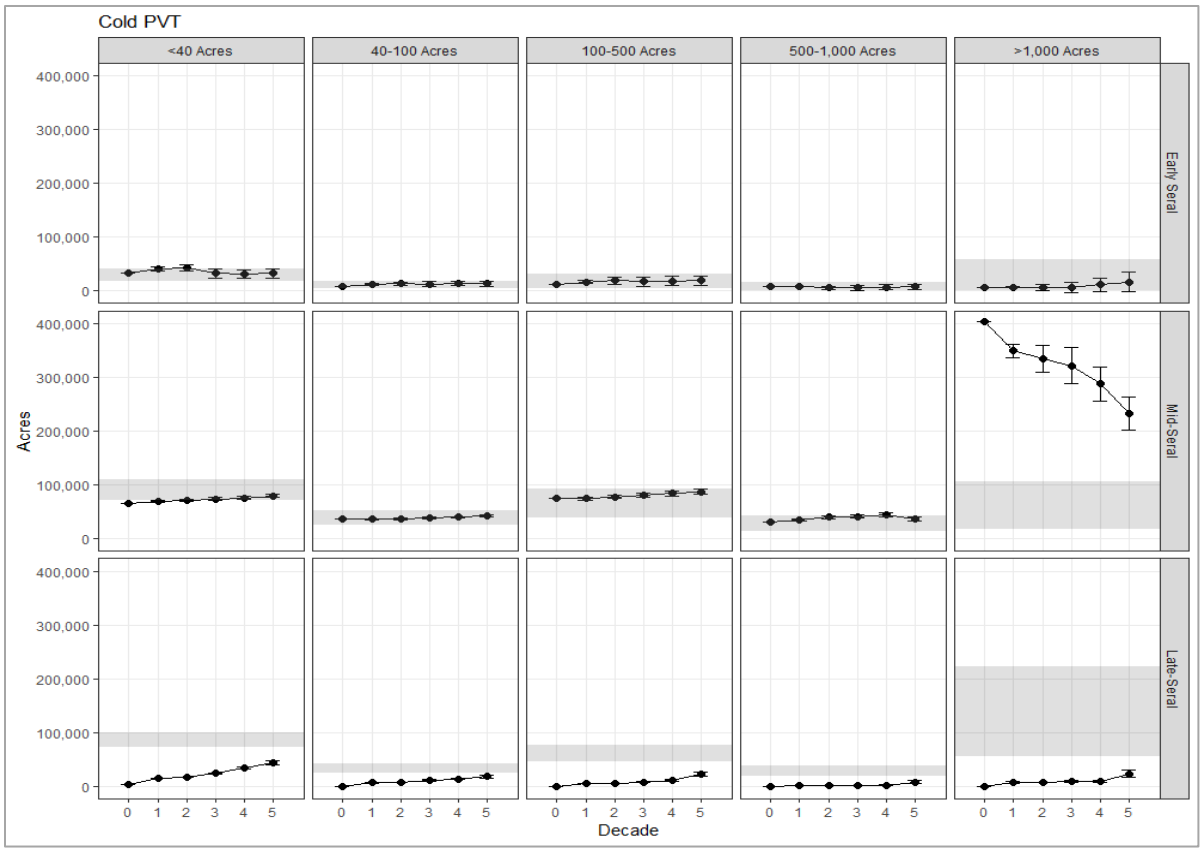


Figure 5. Projected patch size distributions in the cold potential vegetation type (PVT) across all alternatives measured against desired conditions

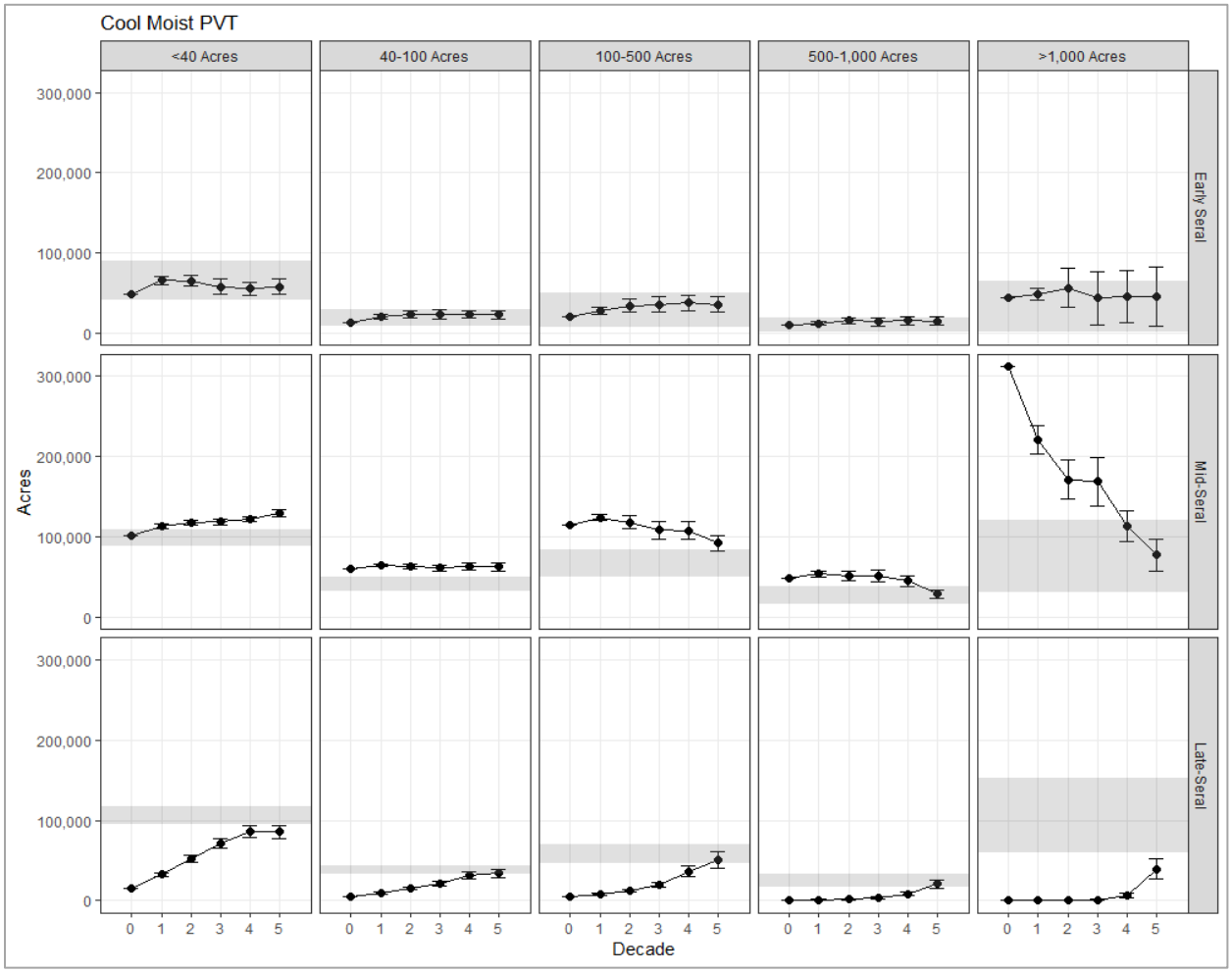


Figure 6. Projected patch size distributions in the cool moist potential vegetation type (PVT) across all alternatives measured against desired conditions

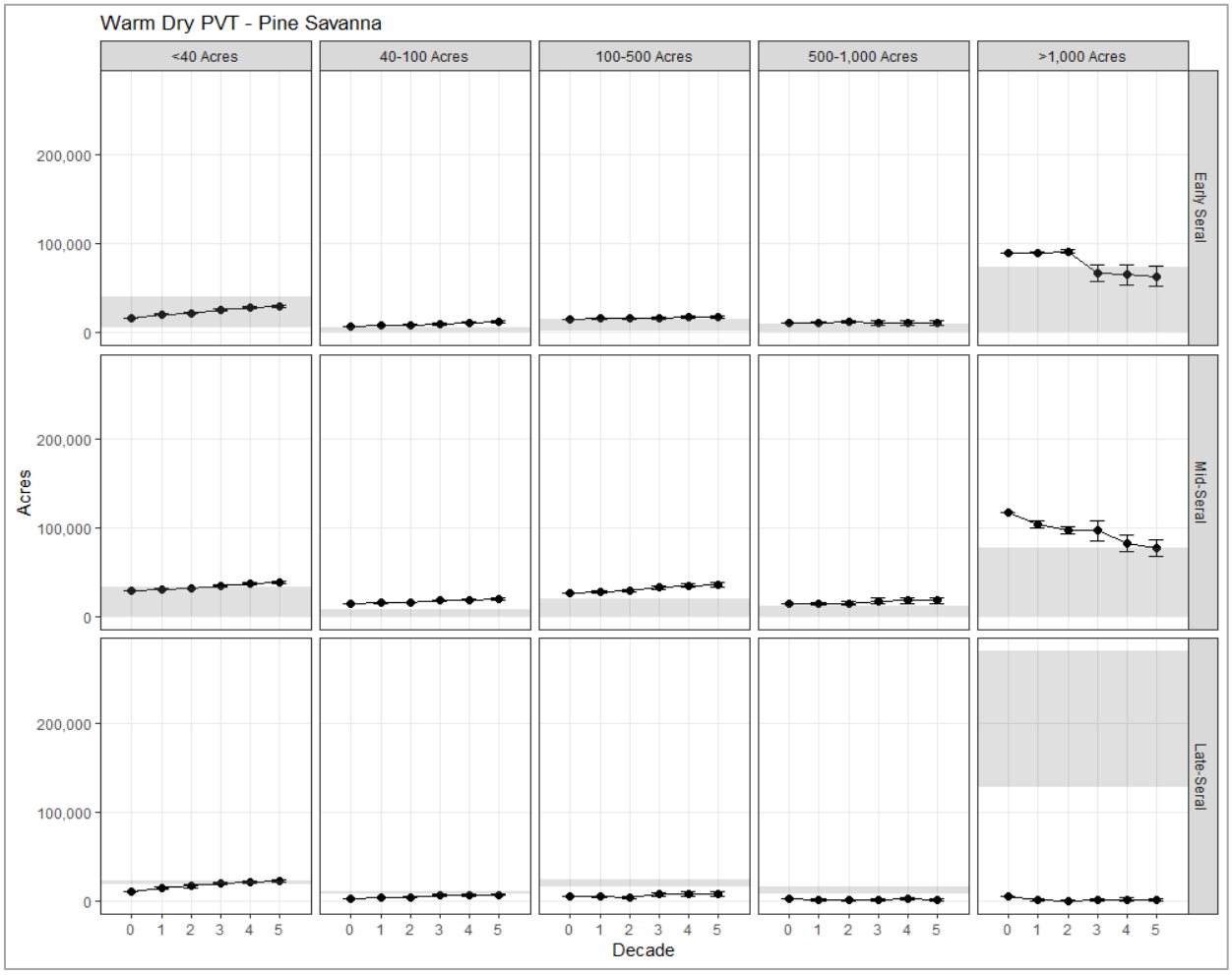


Figure 7. Projected patch size distributions in the warm dry pine savanna potential vegetation type (PVT) across all alternatives measured against desired conditions

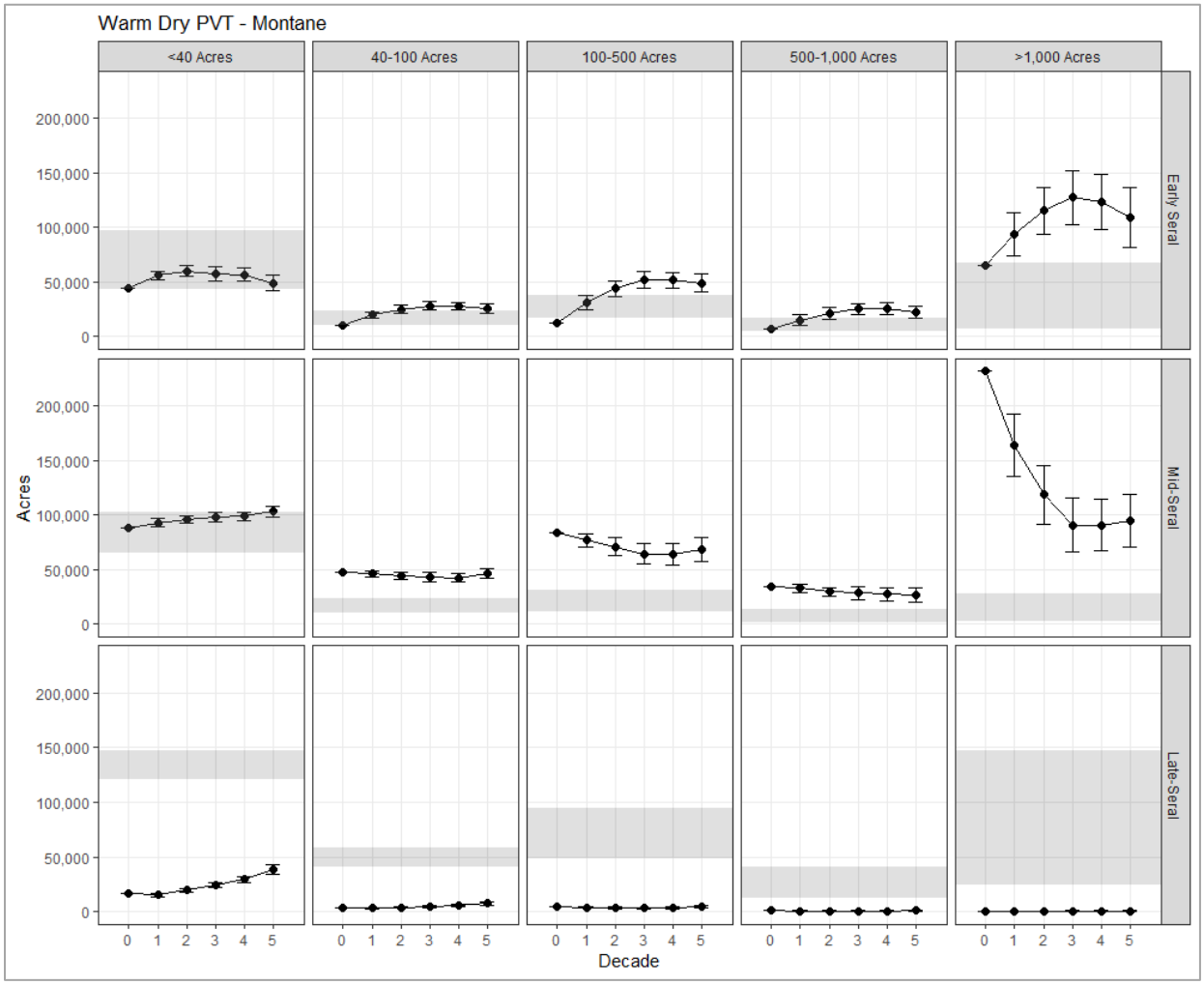


Figure 8. Projected patch size distributions in the warm dry pine montane potential vegetation type (PVT) across all alternatives measured against desired conditions

Connectivity Modeling for Custer Gallatin National Forest

Ecosystems have integrity when their composition, structure, function, and connectivity are operating normally over multiple spatial and temporal scales (FSH 1909.12). The 2012 Planning Rule defines connectivity[6] as "ecological conditions that exist at several spatial and temporal scales that provide landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change." Although this definition includes many components, reasonable consideration of ecological connectivity can be deeply enriched by a well-designed analysis, the scope and objectives of which can be boiled down to the questions: "What should be connected, for whom, and at what scale?"

"What should be connected" refers to the specific locations among which maintaining or restoring connectivity is particularly important for maintaining ecological integrity. Because administrative boundaries often have little influence on ecological flows within a landscape, and national forest units may not represent the most ecologically valuable lands in the region, ecological characteristics were used to identify patches of high-quality habitat that served as the locations within the landscape to ensure connectivity.

"For whom" refers to the organisms (or ecological processes) that will be sustained by ensuring landscape connectivity. The Custer Gallatin Forest Plan strives to ensure connectivity for all elements of biodiversity including ecological processes as well as the more than 1,500 plant and animal species known to occur in the planning area. An analysis approach that considers connectivity for each species and ecological element individually is not just infeasible, it is also not necessarily the best approach given the lack of empirical data to drive such an analysis. As such, for this analysis, the modeling approach was based on generic species, which are virtual species whose profiles consist of sets of ecological requirements designed to reflect habitat conditions as well as the needs of groups of real species. This approach has been applied to other connectivity conservation planning efforts (Watts et al. 2010, Lechner et al. 2017, Foster et al. 2017), and it attempts to strike an appropriate balance between fine-filter connectivity models designed for individual species and coarse-filter models that are entirely species-agnostic.

"At what scale" refers to the spatial extent included in the connectivity analysis. Although lands administered by the Custer Gallatin National Forest are the primary focus of the planning effort, analyses should reflect the scale at which biological populations operate and should facilitate connectivity planning across land ownerships to link national forest lands with ecologically intact lands of other ownership. Accordingly, connectivity was analyzed for a spatial extent encompassing all lands within 100 miles of any Custer Gallatin National Forest unit – an approximately 380,000 square kilometer area including portions of Montana, Wyoming, Idaho, North Dakota, and South Dakota.

For this analysis, connectivity was modeled for 10 generic species that represented different combinations of five vegetation type preferences (forest, alpine, grassland, and shrubland

[6] 36 CFR 219.19

specialists, as well as habitat generalists) and two body sizes (large or small animals), under the assumption that body size was positively correlated with an animal's dispersal range and perceptual range (Jenkins et al. 2007, Mech and Zollner 2002). For each generic species, the analysis:

1. Mapped high-quality "core habitat" areas that are relatively homogenous patches of preferred vegetation type and have a low degree of human modification (Theobald 2013).
2. Generated a landscape conductance surface that represents an animal's ease of movement through the landscape (Zeller, McGarigal and Whiteley 2012), assuming that preferred vegetation types and minimally human-modified areas are easier to move through (Theobald et al. 2012).
3. Modeled connectivity among core habitat areas across the landscape conductance surface using different assumptions about animal movement behavior (whether animals move between two locations in an optimal fashion that minimizes the total cost of movement (Adriaensen et al. 2003), or move in a random fashion along non-optimal pathways (McRae 2006)).

The outputs of the connectivity models were gridded surfaces in which the value of each grid cell indicated the overall importance of that cell for promoting connectivity among all core areas within the landscape (hereafter, "connectivity value") for a given generic species and movement behavior. Figure 9 shows model results for "large forest specialists." Similar results were produced for the other nine generic species. Not surprisingly, connectivity models predicted markedly different spatial patterns of connectivity value for different generic species. For instance, areas within the Custer Gallatin National Forest expected to have greatest connectivity value for large forest specialists and large shrubland specialists, respectively, showed little overlap.

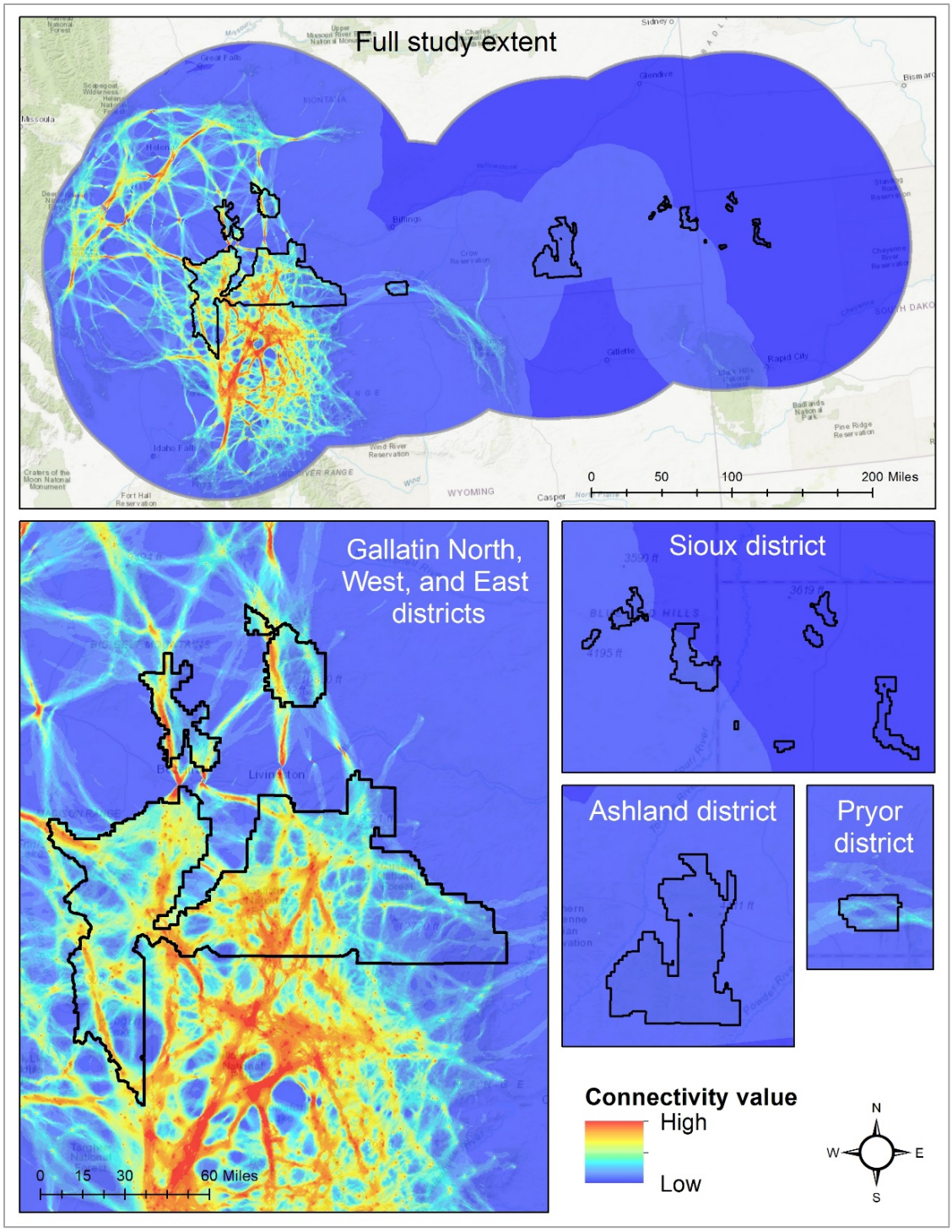


Figure 9. Results of connectivity analysis for the "large forest specialist" generic species, assuming near-optimal movement behavior. Results are shown for the full study extent (top panel) and in greater detail for individual forest units. Warmer colors represent landscape pixels predicted to have greater value for promoting connectivity of large forest specialists across the study extent.

Appendix C: Species of Conservation Concern Plan Components, Sensitive Species Lists

Introduction

The Custer Gallatin National Forest adopted an ecosystem and species-specific approach, known as a coarse-filter and fine-filter approach, to provide for the diversity of plant and animal communities and the long-term persistence of native species in the plan area. The coarse-filter plan components are designed to maintain or restore ecological conditions for ecosystem integrity and ecosystem diversity in the plan area within agency authority and the inherent capability of the land. Plan components found in the "terrestrial ecosystem and vegetation" and "aquatic ecosystem" sections address most needs of animal and plant species. Fine-filter plan components are designed to provide for additional habitat or species-specific needs when those needs are not met through the coarse-filter plan components.

This appendix displays the plan components specific to ecological conditions that support long-term persistence of plant, aquatic, and wildlife species of conservation concern. This appendix also displays the Northern Region Regional Forester's sensitive plant, aquatic, and wildlife species.

Species of Conservation Concern Plan Components

Plant Species of Conservation Concern

Table 18 displays plan components specific to ecological conditions that support long-term persistence of plant species of conservation concern.

Table 18. Plant species of conservation concern, associated habitats and related forest plan components

Name	Habitat	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Salix barrattiana (Barratt's willow)	Alpine	FW-DC-PRISK-01 FW-DC-PRISK-01 FW-DC-GRAZ-04 FW-DC-RT-01 FW-DC-REC-05	FW-OBJ-PRISK-01 FW-OBJ-PRISK-01 FW-OBJ-VEGF-01	FW-STD-PRISK-01 FW-STD-PRISK-02 FW-STD-EMIN-03 FW-STD-WILD-13 FW-STD-EWSR-03 FW-STD-DWA-13 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-03 FW-STD-INV-04 FW-STD-INV-05 FW-STD-SOIL-01 AB-STD-RNA-02 FW-GDL-PRISK-01 FW-GDL-PRISK-02 FW-GDL-FIRE-03 FW-GDL-GRAZ-05 FW-GDL-GRAZ-06 FW-GDL-RECSUP-01 FW-GDL-INV-01 FW-GDL-VEGNF-03 FW-GDL-VEGNF-05 AB-SUIT-RNA-01 AB-SUIT-RNA-02 AB-SUIT-RNA-03 AB-SUIT-RNA-04

Name	Habitat	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Carex gravida var. gravida (heavy sedge)	Broadleaf Woodlands	FW-DC-PRISK-01 FW-DC-PRISK-01 FW-DC-GRAZ-04 FW-DC-RT-01 FW-DC-REC-05 FW-DC-INV-01 FW-DC-INV-02	FW-OBJ-PRISK-01 FW-OBJ-PRISK-01 FW-OBJ-VEGF-01	FW-STD-PRISK-01 FW-STD-PRISK-02 FW-STD-EMIN-03 FW-STD-WILD-13 FW-STD-EWSR-03 FW-STD-DWA-13 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-03 FW-STD-INV-04 FW-STD-INV-05 FW-STD-SOIL-01 FW-GDL-PRISK-01 FW-GDL-PRISK-02 FW-GDL-FIRE-03 FW-GDL-GRAZ-05 FW-GDL-GRAZ-06 FW-GDL-RECSUP-01 FW-GDL-VEGNF-05 FW-GDL-VEGNF-06 FW-GDL-VEGNF-07 FW-GDL-VEGNF-08 FW-GDL-VEGNF-09 FW-GDL-VEGNF-10 FW-GDL-EMIN-02 FW-GDL-INV-01

Name	Habitat	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Asclepias ovalifolia (Oval-leaf milkweed) *Asclepias stenophylla* (narrowleaf milkweed) *Botrychium gallicomontanum* (Frenchman's Bluff moonwort) *Botrychium paradoxum* (peculiar moonwort) *Castilleja exilis* (annual Indian paintbrush) *Grayia spinosa* (spiny hopsage) *Physaria didymocarpa var. lanata* (wooly twinpod) *Pyrrocoma carthamoides* var. *subsquarrosus* (Beartooth large-flowered goldenweed) *Sidalcea oregana* Oregon (checker-mallow)	Grasslands or Shrublands	FW-DC-PRISK-01 FW-DC-PRISK-01 FW-DC-GRAZ-04 FW-DC-RT-01 FW-DC-REC-05 FW-DC-INV-01 FW-DC-INV-02 PR-DC-VEGNF-02	FW-OBJ-PRISK-01 FW-OBJ-PRISK-01 FW-OBJ-VEGF-01 PR-GO-VEGNF-03	FW-STD-PRISK-01 FW-STD-PRISK-02 FW-STD-EMIN-03 FW-STD-WILD-13 FW-STD-EWSR-03 FW-STD-DWA-13 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-03 FW-STD-INV-04 FW-STD-INV-05 FW-STD-SOIL-01 PR-STD-VEGNF-01 PR-STD-VEGNF-02 FW-GDL-INV-01 FW-GDL-VEGNF-05 FW-GDL-PRISK-01 FW-GDL-PRISK-02 FW-GDL-FIRE-03 FW-GDL-GRAZ-05 FW-GDL-GRAZ-06 FW-GDL-RECSUP-01 FW-GDL-VEGNF-01 PR-GDL-VEGNF-01 PR-GDL-VEGNF-02

Name	Habitat	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Adoxa moschatellina (muskroot) *Draba densifolia* (denseleaf draba) *Ericameria discoidea var. discoidea*; (Discoid Goldenweed) *Eriogonum visheri* (Dakota buckwheat) *Heterotheca fulcrata* (rockyscree false goldenaster) *Lomatium nuttallii* (Nuttall Desert-Parsley) *Mimulus nanus* (dwarf purple monkeyflower) *Physaria didymocarpa var. lanata* (wooly twinpod) *Shoshonea pulvinata* (Shoshonea)	Sparsely Vegetated (for example talus scree rocky exposed badlands etc.)	FW-DC-PRISK-01 FW-DC-PRISK-01 FW-DC-GRAZ-04 FW-DC-RT-01 FW-DC-REC-05 PR-DC-VEGNF-01 PR-DC-VEGNF-02	FW-OBJ-PRISK-01 FW-OBJ-PRISK-01 FW-OBJ-VEGF-01 PR-GO-VEGNF-03	FW-STD-PRISK-01 FW-STD-PRISK-02 FW-STD-EMIN-03 FW-STD-WILD-13 FW-STD-EWSR-03 FW-STD-DWA-13 PR-STD-VEGNF-01 PR-STD-VEGNF-02 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-03 FW-STD-INV-04 FW-STD-INV-05 FW-STD-SOIL-01 FW-GDL-INV-01 FW-GDL-VEGNF-03 FW-GDL-VEGNF-05 FW-GDL-PRISK-01 FW-GDL-PRISK-02 FW-GDL-FIRE-03 FW-GDL-GRAZ-05 FW-GDL-GRAZ-06 FW-GDL-RECSUP-01 PR-GDL-VEGNF-01 PR-GDL-VEGNF-02.

Name	Habitat	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Cypripedium parviflorum (small yellow lady's-slipper) *Drosera anglica (English sundew)* *Eleocharis rostellata (beaked spikerush)* *Gentianopsis simplex (hiker's gentian)* *Meesia triquetra (meesia moss)* *Thelypodium paniculatum (northwestern thelypody)*	Riparian or Wetlands	FW-DC-PRISK-01 FW-DC-PRISK-01 FW-DC-GRAZ-04 FW-DC-RT-01 FW-DC-REC-05	FW-OBJ-PRISK-01 FW-OBJ-PRISK-01 FW-OBJ-VEGF-01	FW-STD-PRISK-01 FW-STD-PRISK-02 FW-STD-EMIN-03 FW-STD-WILD-13 FW-STD-EWSR-03 FW-STD-DWA-13 FW-STD-RMZ-01 FW-STD-RMZ-02 FW-STD-RMZ-03 FW-STD-RMZ-04 FW-STD-SOIL-02 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-03 FW-STD-INV-04 FW-STD-INV-05 FW-STD-SOIL-01 FW-STD-GRAZ-01 FW-GDL-PRISK-01 FW-GDL-PRISK-02 FW-GDL-FIRE-03 FW-GDL-GRAZ-01 FW-GDL-GRAZ-02 FW-GDL-GRAZ-05 FW-GDL-GRAZ-06 FW-GDL-RECSUP-01 FW-GDL-RMZ-01 FW-GDL-RMZ-02 FW-GDL-RMZ-03 FW-GDL-RMZ-04 FW-GDL-RMZ-05 FW-GDL-RMZ-06 FW-GDL-RMZ-07 FW-GDL-RMZ-08 FW-GDL-RMZ-09 FW-GDL-RT-10 FW-GDL-FAC-01 FW-GDL-EMIN-02. FW-GDL-INV-01 FW-GDL-VEGNF-05 FW-SUIT-RMZ-01 FW-SUIT-RMZ-02

Wildlife Species of Conservation Concern

Table 19 displays plan components specific to ecological conditions that support long-term persistence of wildlife species of conservation concern.

Table 19. Wildlife Species of Conservation Concern and related forest plan components

Name	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Greater sage-grouse	FW-DC-WLSG-01 FW-DC-VEGNF-04	FW-GO-WLSG-01 FW-GO-VEGNF-01 FW-GO-VEGNF-02 FW-GO-VEGNF-03	FW-STD-WLSG-01 FW-STD-INV-01 FW-STD-INV-02 FW-STD-INV-04 FW-GDL-VEGNF-01 FW-GDL-WLSG-01 FW-GDL-WLSG-02 FW-GDL-WLSG-03 FW-GDL-WLSG-04 FW-GDL-WLSG-05 FW-GDL-WLSG-06 FW-GDL-WLSG-07
White-tailed prairie dog	FW-DC-WLPD-01 FW-DC-VEGNF-04	FW-GO-WLPD-01 FW-GO-VEGNF-01 FW-GO-VEGNF-02 FW-GO-VEGNF-03	FW-STD-WLPD-01 FW-STD-WLPD-02 FW-GDL-VEGNF-01

Aquatic Species of Conservation Concern

Table 20 displays plan components specific to ecological conditions that support long-term persistence of aquatic species of conservation concern.

Table 20. Aquatic Species of Conservation Concern, associated habitats and related forest plan components

Name	Desired Conditions	Goals & Objectives	Suitability, Standards & Guidelines
Western pearlshell mussel	FW-DC-WTR-02 FW-DC-RMZ-02 FW-DC-WTR-03	FW-GO-WTR-01 FW-OBJ-WTR-01 FW-OBJ-WTR-02 FW-OBJ-WTR-03	FW-STD-WTR-02 FW-STD-INV-05 FW-GDL-RMZ-01 FW-GDL-RMZ-03 FW-GDL-RMZ-04 FW-GDL-RMZ-05 FW-GDL-GRAZ-01 FW-GDL-GRAZ-02 FW-GDL-GRAZ-04 FW-GDL-GRAZ-05

Sensitive Species

The Northern Region Regional Forester's sensitive plant, aquatic and wildlife species are displayed in this section.

Regional Forester's Sensitive Species - Plants

Portions of the Custer Gallatin fall within montane (Absaroka-Beartooth Mountains; Madison, Henrys Lake, and Gallatin Mountains; Bridger, Bangtail, and Crazy Mountains; and the Pryor Mountains Geographic Areas) and pine savanna (Ashland and Sioux Geographic Areas) ecological settings. As a result of a review of existing information relative to Regional Forester's sensitive plant species extent of distribution and ecological requirements, a list of sensitive plant species have been screened as to its potential habitat. Thus, not all Custer Gallatin listed sensitive species can be found on all districts due to suitable habitat constraints.

Suitable habitat for 31 currently listed Regional Forester's sensitive plant species exists on the Custer Gallatin National Forest. Twenty-five of the 31 have known populations that occur on the forest while six species are not known, but are suspected to occur.

Table 21 outlines current 2011 Northern Region Regional Forester's sensitive plant species (Regional Forester's list dated February 25, 2011) along with species' conservation rankings, general distribution in the plan area, and habitats.

Table 21. Regional Forester's Sensitive Plant Species (RFSS) for the Custer Gallatin National Forest

Name	Conservation Categories[7]	Habitat
Salix barrattiana Barratt's willow (Known - Montane)	G5; S1 – MT; RFSS	Alpine. Forms extensive thickets in alpine habitats. Grows on boggy meadows, moist open hillsides in mountains, lakeshores, streambanks, rock slides, and recent alluvial deposits. Soils range from very calcareous to very acidic. Elevation 6,800–10,500'. Known - Beartooth Ranger District; Suspected on Yellowstone, Gardiner, Bozeman, and Hebegen Lake Ranger Districts
Pinus albicaulis[8] Whitebark Pine Known - (Montane)	G3G4; S3 - MT; RFSS, Federal Candidate Species	Cold Forest. Moderate shade tolerance. Most often growing with other conifers on weakly developed (immature) soils. Cold, windy, snowy, and generally moist climatic zone. In moist mountains, it is most abundant on warm, dry exposures. In semiarid ranges, it is found on cool exposures and moist sites. In all but the driest regions, whitebark pine is most abundant on warm aspects and ridgetops having direct exposure to sun and wind. Elevation 7,000–9,300'. Known - Beartooth, Yellowstone, Gardiner, Bozeman, and Hebegen Lake Ranger Districts
Aquilegia brevistyla Short-styled Columbine (Known - Montane)	G5; S2S3 - MT; RFSS	Cool Moist Forest. Open woods and streambanks, limestone sites, northern aspect; often associated with limestones. Elevation 5,000–6,000'. Known[9] - Yellowstone Ranger District

[7] Gx = Global ranking. Sx - MT = Montana species of concern state ranking; Sx - SD = South Dakota species of concern state ranking. RFSS = Regional Forester's Sensitive Species

[8] Added to R1 Sensitive Species List 2011

[9] In 1967, one *Aquilegia brevistyla* occurrence was reported along the Boulder River in Montana. From the location information, it is not clear if the specimen was actually collected from the Gallatin National Forest (Northern Region) or from private land. *Aquilegia brevistyla* has not been found in the area since this original collection despite subsequent surveys (Mathews 1989, Ladyman, 2006, MNHP 2016).

Name	Conservation Categories[7]	Habitat
Botrychium hesperium Western moonwort (Known – Montane)	G4; S3 - MT; RFSS	Cool Moist Forest. Low canopy cover settings. Mesic meadows associated with spruce and lodgepole pine forests in the montane and subalpine zones. Elevation 5,000 – 9000'. Known - Yellowstone Ranger District; Suspected - Beartooth Ranger District
Goodyera repens Northern Rattlesnake Plantain (Suspected - Montame)	G5; S3 - MT; RFSS	Cool Moist Forest. Open mossy forests, mountains, limestone, shale or moist limestone slopes of old growth Douglas-fir, montane zone or cool north aspects characterized by spruce and twinflower or subalpine-fir and twinflower habitat types. Elevation 5,600–6,800'. Suspected - Yellowstone Ranger District
Juncus hallii Hall's rush (Suspected – Montane)	G4G5; S4 – MT (no longer a SOC) ; RFSS	Cool Moist Forest. Moist to dry meadows and slopes from valley to montane. Elevation 4,000–8,860'. Suspected - Beartooth, Yellowstone, Gardiner, Bozeman, and Hebegen Lake Ranger Districts
Thalictrum alpinum Alpine Meadowrue (Suspected - Montane)	G5; S2 - MT; RFSS	Cool Moist Forest. On hummocks w/low shrubs in moist, alkaline meadows in montane, subalpine. Elevation 6,500–7,000. ' Suspected - Hebgen Lake Ranger District
Carex gravida var. *gravida* Heavy sedge (Known, Pine Savanna)	G5; S3 - MT; RFSS	Broadleaf Woodlands. Open woods, often in ravines with deciduous trees, on the plains. Elevation 3,880–4,000'. Known - Ashland and Sioux Ranger Districts
Asclepias ovalifolia Ovalleaf milkweed (Known - Pine Savanna)	G5?; S1S2 - MT; RFSS	Grasslands or Shrublands. Sandy, gravelly or clayey soils of prairies and open woodlands. Shallow soils. Elevation 3,760–3,840'. Known - Sioux Ranger District
Balsamorhiza macrophylla Large-leaved Balsamroot (Known - Montane)	G3G5; S3S4 – MT (no longer a SOC) ; RFSS	Grasslands or Shrublands. Open hills, associated with bunchgrasses; most often east-facing slopes (8-15%). Elevation 7,000–8,500'. Known - Hebgen Lake Ranger District
Botrychium[10] *ascendens* Upward-lobed moonwort (Known - Montane)	G3; S3 - MT; RFSS	Grasslands or Shrublands. Low canopy cover settings. Stream floodplain habitats dominated by deciduous shrubs with lush cover by forbs, graminoids, and mosses in north west Montana. Mesic meadows, alpine vegetated talus in south central Montana; areas of light to moderate disturbance. Elevation 5,000–9000'. Known - Yellowstone Ranger District; Suspected - Beartooth Ranger District
Botrychium paradoxum Peculiar moonwort (Known – Montane))	G3G4; S3 - MT; RFSS	Grasslands or Shrublands. Low canopy cover settings. Dry to moist, often gravelly and lightly disturbed soil of bunchgrass, meadows, and mid-succession gravel bars in the valley and montane zones. Alpine vegetated talus in south central Montana; areas of light to moderate disturbance. Elevation 5,000–9000'. Known - Yellowstone Ranger District; Suspected - Beartooth Ranger District
Haplopappus carthamoides var. subsquarrosus Beartooth goldenweed (Known – Montane)	G4G5T3; S3 - MT; RFSS	Grasslands or Shrublands. Grasslands and sagebrush steppe on sandy calcareous soils in the foothills and montane zones. Elevation 5,520–7,200'. Known - Beartooth Ranger District

[10] Two *Botrychium* species, although not listed in the Northern Region 2011 sensitive plant list for the Custer National Forest, have been added due to new information that there are known populations of these regional sensitive species adjacent to the Beartooth District. Concurrence with this action made by Regional Botanist, June 2011.

Name	Conservation Categories[7]	Habitat
Adoxa maschatellina Musk-root (Known - Montane)	G5; S3 - MT & SD; RFSS	Sparse Vegetation. Vernally moist places in the mountains at the bottom of undisturbed, open rock slides that have cold air drainage. Generally shaded, montane to subalpine. Elevation 4,400–6,000'. Known - Beartooth Ranger District
Astragalus barrii Barr's milkvetch (Known - Pine Savanna)	G3; S3 – MT & SD; RFSS	Sparse Vegetation. Gullied knolls, buttes, and barren hilltops, often on calcareous soft shale and siltstone. Elevation 2,940–4,000'. Known - Ashland Ranger District; Suspected - Sioux Ranger District
Ericameria discoidea var. discoidea *(Syn. Haplopappus macronema var. macronema)* Discoid Goldenweed - (Known (Montane)	G4G5T4; S2 - MT; RFSS	Sparse Vegetation. Rocky, open or sparsely wooded slopes, talus, above timberline. Elevation 7,640' plus. Known - Hebgen Lake Ranger District
Eriogonum visherii Dakota buckwheat (Known - Pine Savanna)	G3; S2 – MT; S3 - SD; RFSS	Sparse Vegetation. Barren, often bentonitic badlands slopes and outwashes in the plains. Elevation 3,140–3,760'. Known - Sioux Ranger District (SD)
Mimulus nanus Dwarf Purple Monkeyflower (Known - Montane)	G5; S2S3 - MT; RFSS	Sparse Vegetation. Dry gravelly or sandy slope; may prefer bare areas with minimal competition. Elevation 6,565' plus. Known - Hebgen Lake Ranger District
Polygonum douglasii spp. austiniae Austin's Knotweed (Known - Montane)	G4; S3S4 - MT; RFSS	Sparse Vegetation. Open, gravelly, shale soils with eroding slopes and banks in montane. Elevation 5,800–6,600'. Known - Gardiner and Yellowstone Ranger Districts
Shoshonea pulvinata Shoshonea (Known - Montane)	G2G3; S1 - MT; RFSS	Sparse Vegetation. Open, exposed limestone outcrops, ridgetops and canyon rims, in thin rocky soils. Elevation 6,440–7,800'. Known - Beartooth Ranger District
Cypripedium parviflorum Small yellow lady's slipper (Known –Pine Savanna; Suspected – Montane)	G5' S3S4 – MT; S3? - SD; RFSS	Riparian or Wetlands. No known occurrences. Fens, damp mossy woods, seepage areas, and moist forest-meadow ecotones in valley to lower montane. Elevation 2,520–6,200'. Known - Sioux; Suspected - Beartooth, Yellowstone, Gardiner, Bozeman, Hebgen Lake Ranger Districts
Drosera anglica English sundew (Known - Montane)	G5; S3 - MT; RFSS	Riparian or Wetlands. Peat lands, on floating organic mats--undisturbed sphagnum bogs. Elevation 3,000–9,000'. Known - Hebgen Lake Ranger District
Eleocharis rostellata Beaked spikerush (Known - Montane)	G5; S1- SD; S3 - MT; RFSS	Riparian or Wetlands. Bogs. Elevation 2,700–6,100'. Known - Gardiner Ranger District
Epipactis gigantea Giant helliborine (Suspected – Montane)	G4; S2S3 - MT; RFSS	Riparian or Wetlands. No known occurrences. Streambanks, fens with springs/seeps, often near thermal waters. Elevation 2,900–6,200'. Suspected Bozeman, Hebgen Lake, Gardiner, Yellowstone, Beartooth Ranger Districts
Eriophorum gracile Slender cottongrass (Suspected - Montane)	G5; S1- SD; S3 - MT; RFSS	Riparian or Wetlands. No known occurrences. Peat land, fen, bog species. Elevation 3,000–7,600'. Suspected - Hebgen Lake, Bozeman, Yellowstone, Gardiner Ranger Districts[11]

[11] Although noted as known in Northern Region 2011 sensitive species list, source documentation cannot be found, therefore this species is being shown as "suspected" rather than as "known" in the plan area.

Name	Conservation Categories[7]	Habitat
Gentiana affinis Prairie gentian (Known – Pine Savanna)	G5; S2 – SD; S4 - MT; RFSS	Riparian or Wetlands. Wet meadows, shores, springs, seepage areas and low prairie. Elevation 5,870–9,740'. Known - Sioux Ranger District
Gentianopsis simplex Hiker's gentian (Known – Montane)	G5; S2 - MT; RFSS	Riparian or Wetlands. Fens, meadows, and seeps, usually in areas of crystalline parent material, in the montane and subalpine zones. Elevation 4,460–8,400'. Known - Beartooth, Bozeman Ranger Districts
Primula incana Mealy primrose (Historically Documented - [12] Montane)	G4G5; S3 - MT; RFSS	Riparian or Wetlands. No known occurrences. Historically documented. Wet meadows, springs and shores, often alkaline; calcareous bog meadows; wet meadows & quaking bogs; not found in alpine or subalpine areas. Elevation 2,000–6,600'. Historically documented - Beartooth Ranger Districts[13]
Meesia triquetra Three-ranked hump moss (Known - Montane)	G5; S2 - MT; RFSS	Riparian or Wetlands. Rich fens having surface waters with high pH and calcium concentrations. It can also be found in alkaline swampy birch and willow woods. Elevation 5,000-6,000'. Known - Beartooth Ranger District
Mertensia ciliata Mountain bluebells (Known -Montane & Pine Savanna)	G5; S1 - SD; RFSS	Riparian or Wetlands. Forested slopes-damp thickets in course to medium textured soils. Valley bottoms associated with springs, seeps, and spring fed water courses; occasionally found in non-wetlands. Very drought intolerant. Elevation 5,500' plus. Known - Sioux Ranger District, Ashland, Montane Districts
Veratrum californicum California False Hellebore - (Suspected - Montane)	G5; S2 - MT; RFSS	Riparian or Wetlands. No known occurrences. Wet meadows and streambanks in montane and subalpine, alpine. Meadows, spruce, Doug fir. Elevation 5,000–8,500'.

In addition, *Lomatium nuttallii* (Nuttall Desert-Parsley), although not listed in the Northern Region sensitive plant list for the Custer National Forest, has been added as a local species of concern (concurrence with this action made by Regional Botanist, June 2005), due to information that there are known populations of this traditional use species on the Ashland District. It is ranked as G3; S2 in Montana and SH in South Dakota and occurs in the sparse vegetation guild; dry gravelly or sandy slopes at 6,565 foot elevation or above.

[12] Historically known to occur, but not recently documented.
[13] Historically known to occur, but not recently documented.

Regional Forester's Sensitive Species – Aquatic Species

Table 22 outlines current Northern Region sensitive aquatic species, habitat, and their distribution.

Table 22. Northern Region Sensitive Fish, Amphibian, and Mussel Species for the Custer Gallatin National Forest

Name	Conservation Categories[14]	Habitat
Oncorhynchus clarkii lewisi Westslope cutthroat trout (Known – CGNF; Known –MHG, BBC) (montane)	G4; S2 – MT; RFSS	They inhabit relatively clear, cold streams, rivers, and lakes.
Oncorhynchus clarkii bouvieri Yellowstone cutthroat trout (Known-CGNF; Known AB, MHG, Pryors, & BBC GA's) (montane)	G4; S2-MT; RFSS	They inhabit relatively clear, cold streams, rivers, and lakes.
Thynmallus arcticus Arctic grayling (Known-CGNF; MHG & AB GA) (Montane)	G5; S1-MT RFSS	Found primarily small, cold, clear lakes with tributaries suitable for spawning. Also found in tributaries and streams with cold water.
Chrosomus eos Northern redbelly dace (Historically documented near Ashland and Sioux GA's)	G5; S3-MT; ST-SD; RFSS	Clear, cool, slow-flowing creeks, ponds and lakes with aquatic vegetation, including filamentous algae, and sandy or gravelly bottoms interspersed with silt. May be perennial or intermittent stream systems.
Anaxyrus boreas Western toad (Known-CGNF; Known-MHG,BBC GA's) (montane)	G4; S2-MT; RFSS	Habitat includes streams, wetlands, beaver ponds, lake shores, wet meadows, marshes, high elevation ponds at tree-line. Have been found associated with canopy cover and in open grassland areas.
Spea bombifrons Plains spadefoot (Known-MHG, GA Suspected other GAs) (montane and pine savanna)	G5; S3-MT RFSS	Found in areas with soft sandy and gravelly soils near permanent or temporary bodies of water. For much of each year it lives largely inactive in burrows of its own construction or occupies rodent burrows, and enters water only to breed. Following heavy rains, adults have been reported in water up to 30 centimeters deep in flooded wagon wheel ruts, temporary rain pools formed in wide flat-bottom coulees, water tanks, and badland seep ponds, and tadpoles and toadlets have been observed in stock ponds and small ephemeral reservoirs, usually in sagebrush-grassland habitats.
Anaxyrus cognatus Great Plains Toad (Known –Ashland, Sioux GA) (pine savanna)	G5 S2-MT RFSS	Have been documented in rainwater pools in road ruts, in stream valleys, at small reservoirs and stock ponds, and around rural farms; breeding has been documented in small reservoirs and backwater sites along streams.
Lithobates pipiens Northern Leopard Frog (Known – Ashland, Sioux GA) (montane & pine savanna)	G5; S1,S4-MT RFSS	S1-alpine lakes, locally extirpated from these locations for reason unknown S4, not Montana Fish, Wildlife, and Parks species of concern in pine savanna; Low elevation and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, pools in intermittent streams, warm water springs, potholes, and marshes.

[14] Gx = Global ranking. Sx - MT = Montana species of concern state ranking; Sx - SD = South Dakota species of concern state ranking. RFSS = Regional Forester's Sensitive Species

Name	Conservation Categories[14]	Habitat
Margaritifera falcata Western pearlshell (Known – MHG GA) (montane)	G5; S2-MT RFSS	Clean cold streams with a moderate gradient and stable sand or gravel substrates where westslope cutthroat trout are present

MHG = Madison, Henrys Lake, and Gallatin Mountains, AB = Absaroka Beartooth Mountains, BBC = Bridger, Bangtail and Crazy Mountains, GA = Geographic Area, CGNF = Custer Gallatin National Forest

Regional Forester's Sensitive Species – Wildlife Species

Table 23 outlines current Northern Region sensitive wildlife species, where they are known or suspected to occur and where the species is address in the draft revised plan.

Table 23. Regional Forester's Sensitive Species – Wildlife Species

Species	Conservation Categories[1]	Habitat
Ammodramus bairdii Baird's sparrow	G4; MT S3B; SD S2B	Grassland: long-grass prairie
Haliaeetus leucocephalus Bald eagle	G5; MT S4; SD S1B S2N	Aquatic: riparian habitat associated with large rivers or lakes
Ovis canadensis Bighorn sheep	G4; MT S4; SD S4	Grass or shrub with nearby rock or cliff features for escape terrain
Picoides arcticus Black-backed woodpecker	G5; MT S3; SD S3	Recently burned forest
Cynomys ludovicianus Black-tailed prairie dog	G4; MT S3; SD S4	Grassland: short-grass prairie
Polioptila caerulea Blue—gray gnatcatcher	G5; MT S2B; SD S1	Woodlands, shrubs, riparian willow, cottonwood
Athene cunicularia Burrowing owl	G4; MT S3B; SD S3 S4B	Grassland, shrubland, Rocks and caves Black-tailed prairie dog colonies
Otus flammeolus Flammulated owl	G4; MT S3; SD S1	Open, parklike ponderosa pine forest
Myotis thysanodes Fringed myotis	G4; MT S4; SD S2	Grass, shrub, spruce/fir forest; caves, mines, buildings used for roost sites
Canis lupus Gray wolf	G5; MT S4; SD NR	Generalist – forest
Centrocercus urophasianus Greater sage-grouse	G3G4; MT S2; SD S2	Sagebrush
Phrynosoma hernandesi Greater short-horned lizard	G5; MT S3; SD S2	Rocky/sandy areas, sparse vegetation, short grass, sage,
Histrionicus hisstrionicus Harlequin duck	G4; MT S2B; SD NR	Aquatic; fast-moving mountain streams
Lanius ludovicianus Loggerhead shrik	G4; MT S3B; SD S3 S4B	Grassland, shrubland, wooded draws
Numenius americanus	G5; MT S3B; SD S3	Sparse vegetation, short-grass prairie

[1] Gx = Global ranking. Sx - MT = Montana species of concern state ranking; Sx - SD = South Dakota species of concern state ranking.

Species	Conservation Categories[1]	Habitat
Long-billed curlew		
Myotis evotis Long-eared myotis	G5; MT S4; SD S1	Mature to old growth forest; caves for maternity roosts
Myotis Volans Long-legged myotis	G4G5; MT S4; SD S5	Montane conifer forest, riparian cottonwoods; Roosts in tree bark; caves for hirbernacula
Lampropeltis Triangulum Milksnake	G5; MT S2; SD S4	Open prairie, sand dunes, rocky hillsides/outcrops;
Antrozous pallidus Pallid bat	G4; MT S3; SD NR	Rocks and caves for roosts and hibernacula
Falco peregrinus Peregrine falcon	G4; MT S3; SD SX	Cliffs for nesting; riparian associate for foraging
Euderma maculatum Spotted bat	G4; MT S3; SD NR	Rocks and caves for roosting and hibernacula
Corynorhinus townsendii Townsend's big-eared bat	G3 G4; MT S3; SD S2	Rocks and caves for roosting and hibernacula
Cygnus buccinators Trumpeter swan	G4; MT S3; SD S3	Aquatic: rivers, lakes, marshes
Heterodon nasicus Western hognose snake	G5; MT S2; SD S5	Rock habitat associate; sandy, rocky areas
Cynomys leucurus White-tailed prairie dog	G4; MT S1; SD NR	Grass/shrub
Gulo gulo Wolverine	G4; MT S3; SD SX	High elevation, alpine tundra and boreal forest

Appendix D: Recommended Wilderness Analysis

Introduction

When developing or revising a forest plan, the Forest Service must identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and determine whether to recommend any such lands to be designated as wilderness. This is done in four steps: 1) inventory, 2) evaluation, 3) analysis, and 4) recommendation. An opportunity for public input and review is required after each of these steps. The inventory and evaluation steps are completed; this appendix documents the analysis requirements found in the Forest Service Handbook 1909.12, chapter 70. In all of the tables in this document, the acres reported are approximate.

Inventory and Evaluation

The wilderness inventory was developed using both the size and the improvements criteria outlined in Chapter 70 of the 2015 Final Land Management Planning Directives, Forest Service Handbook 1909.12. The Custer Gallatin National Forest identified 80 distinct areas that had potential for inclusion based on this criteria. In July 2017, the Custer Gallatin released for public feedback a draft inventory of areas suitable to continue to Step 2, Evaluation. A detailed discussion of the wilderness inventory process and changes made to the draft inventory were made available in November 2017 on the plan revision website at https://www.fs.usda.gov/detail/custergallatin/landmanagement/planning/?cid=fseprd543827. Subsequent to the November 2017 release, three additional changes were made; the addition of polygon PRYORS_96 and modifications to the boundaries for PRYORS_1 and PRYORS_10. These modifications were made at the request of the forest supervisor to allow for evaluation of these areas.

Each of the areas identified in the wilderness inventory step were evaluated to determine their potential suitability for inclusion in the National Wilderness Preservation System using the criteria included in the Wilderness Act of 1964. An opportunity for public review of the evaluation of the wilderness polygons was made available with the release of the proposed action in January of 2018.

A more detailed review of the inventory and evaluation steps is documented in appendix D of the January 2018 Proposed Action (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd567792.pdf), along with maps of all wilderness inventory polygons.

Analysis

Based on the evaluation of the inventory areas and input from public participation, the responsible official identified specific areas to take forward as recommended wilderness areas in the alternatives in the draft environmental impact statement. Not all of the lands included in the inventory and studied in the evaluation steps are required to be carried forward in an alternative and studied in the draft environmental impact statement. Maps of each recommended

wilderness area included in the alternatives are located in appendix A of the draft environmental impact statement. In addition to the analysis in the draft environmental impact statement, the Forest Service Handbook 1909.12, chapter 70, requires that the following items be discussed for each recommended wilderness area in each Alternative where it was identified:

- The name of the area and number of acres to be considered for recommendation;
- The location and a summarized description of a boundary for each recommended area;
- A brief description of the general geography, topography and vegetation of the recommended area;
- A brief description of the current uses and management of the area;
- A description of the area's wilderness characteristics and the ability to protect and manage the area so as to preserve its wilderness characteristics;
- A brief summary of the factors considered and the process used in evaluating the area and developing the alternatives;
- A brief summary of the ecological and social characteristics that would provide the basis for the area's suitability for inclusion in the National Wilderness Preservation System.

Alternatives

Recommended wilderness areas are drawn from lands in the wilderness inventory prepared for forest plan revision. There may be ongoing management activities on the lands in the wilderness inventory; these activities do not preclude the consideration of these lands as recommended wilderness.

Table 24 provides a summary of the recommended wilderness areas that are included in each alternative, including the geographic area (GA) where it is located, the inventory polygon it originated from, and the approximate acres. There are no recommended wilderness areas in alternative E.

Table 24. Recommended wilderness areas included in each alternative

Name	Geographic Area	Current Plans	Alternative B	Alternative C	Alternative D
Cook Mountain	Ashland	N/A	N/A	N/A	9,794
King Mountain	Ashland	N/A	N/A	N/A	10,502
Tongue River Breaks	Ashland	N/A	N/A	N/A	16,883
Bear Canyon	Pryor Mountains	N/A	N/A	N/A	10,366
Big Pryor	Pryor Mountains	N/A	N/A	N/A	12,737
Lost Water Canyon	Pryor Mountains	6,804	6,804	6,804	12,992
Punch Bowl	Pryor Mountains	N/A	N/A	N/A	7,766
Burnt Mountain	Absaroka Beartooth Mountains	3,917	N/A	N/A	N/A
Chico Peak	Absaroka Beartooth Mountains	N/A	N/A	N/A	7,036
Deckard Flats	Absaroka Beartooth Mountains	N/A	N/A	N/A	935
Deer Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	85,444
Dome Mountain	Absaroka Beartooth Mountains	N/A	N/A	N/A	9,540

Name	Geographic Area	Current Plans	Alternative B	Alternative C	Alternative D
East Rosebud to Stillwater	Absaroka Beartooth Mountains	N/A	N/A	N/A	17,422
Emigrant Peak	Absaroka Beartooth Mountains	N/A	N/A	N/A	15,829
Knowles Peak	Absaroka Beartooth Mountains	N/A	N/A	N/A	1,223
Line Creek Plateau	Absaroka Beartooth Mountains	809	801	801	26,605
Mount Rae	Absaroka Beartooth Mountains	N/A	N/A	N/A	2,839
Mystic	Absaroka Beartooth Mountains	247	247	247	136
North Fork	Absaroka Beartooth Mountains	N/A	N/A	N/A	36
Phelps Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	3,177
Red Lodge Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	12,039
Red Lodge Creek/Hell Roaring	Absaroka Beartooth Mountains	802	802	802	N/A
Republic	Absaroka Beartooth Mountains	388	388	388	388
Sheep Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	557
Strawberry Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	11,597
Tie Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	5,886
West Fork Rock Creek	Absaroka Beartooth Mountains	N/A	N/A	N/A	12,470
West Woodbine	Absaroka Beartooth Mountains	N/A	N/A	N/A	1,091
Blacktail Peak	Bridger, Bangtail, Crazy Mountains	N/A	N/A	N/A	6,147
Crazy Mountains	Bridger, Bangtail, Crazy Mountains	N/A	N/A	N/A	59,636
West Bridger	Bridger, Bangtail, Crazy Mountains	N/A	N/A	N/A	26,106
Buck Creek	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	28,966
Cabin Creek North	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	17,092
Cabin Creek South	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	19,272
Cowboy Heaven	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	15,536	14,357
Gallatin	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	99,415	194,709
Gallatin Crest	Madison, Henrys Lake, Gallatin Mountains	N/A	67,633	N/A	N/A
Lionhead	Madison, Henrys Lake, Gallatin Mountains	20,774	17,983	15,738	31,389
Sawtooth Mountain	Madison, Henrys Lake, Gallatin Mountains	N/A	14,828	N/A	N/A
Spanish Peaks East	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	5,861
Spanish Peaks South	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	2,845
Taylor Hilgard	Madison, Henrys Lake, Gallatin Mountains	N/A	4,466	6,824	4,466

Name	Geographic Area	Current Plans	Alternative B	Alternative C	Alternative D
Yankee Jim Lake	Madison, Henrys Lake, Gallatin Mountains	N/A	N/A	N/A	6,292
Total Acres	No data	33,741	113,952	146,555	711,425

Alternative A, the no-action alternative, is based on the current forest plans, which have seven recommended wilderness areas totaling approximately 33,741 acres. These recommended wilderness areas are under the guidance of either the 1986 Custer National Forest Plan or the 1987 Gallatin Forest Plan.

The nine recommended wilderness areas identified in Alternative B are located on three geographic areas and total approximately 113,678 acres. These recommended wilderness areas were derived from the wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all of the original acres. They were selected based on consideration of the information in the wilderness evaluation, as well as factors such as potential resource threats, existing uses, public input and public values, and manageability. The 113,678 acres recommended for wilderness under this alternative were carefully considered in the context of balancing recommended wilderness, backcountry areas, and other potential land management direction, and other multiple use considerations for the national forest. Boundaries for the recommended wilderness areas were drawn to tie the boundary lines to naturally occurring ridges, boundary lines, or other locatable features on the landscape to make them more manageable, or to buffer existing roads or trails to provide for continued road or trail operation, including potential work outside of the existing road or trail prism.

The nine recommended wilderness areas identified in Alternative C are located on three geographic areas and total approximately 146,555 acres. These recommended wilderness areas were derived from the wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all of the original acres. Alternative C differs from Alternative B by using the configuration of the Gallatin, Cowboy Heaven, and Taylor Hilgard Recommended Wilderness Areas submitted by Gallatin Forest Partnership. Alternative C also excludes most mountain biking trails from the Lionhead Recommended Wilderness Area in response to multiple comments received during pubic scoping.

Alternative D responds to comments received during pubic scoping asking the forest to consider an alternative that increased the amounts of recommended wilderness areas and primitive recreation opportunities. Alternative D identifies 39 recommended wilderness areas. These recommended wilderness areas include the areas identified for alternatives B and C as well as thirty additional areas. This alternative also includes additional acreages for the Gallatin, Cowboy Heaven, Taylor Hilgard, and Lionhead Recommended Wilderness Areas from either alternative B or alternative C. The recommended wilderness areas in alternative D are located across five geographic areas and total about 711,631 acres. All of the recommended wilderness areas for alternative D were derived from the original wilderness inventory polygons identified in the first step of the wilderness evaluation process, but do not necessarily include all of the original acres of those wilderness inventory polygons. Boundaries for the recommended wilderness areas

were drawn to tie to features such as naturally occurring ridgelines, boundary lines or to buffer existing roads to provide for continued road operation, including potential work outside of the existing road prism.

No areas were recommended for wilderness in alternative E to respond to issues identified in the scoping of the proposed action. Scoping comments identified a desire to not recommend any acres to be managed as recommended wilderness. This alternative is designed to respond to the public input received in scoping and to display a reasonable range of alternatives as required under the National Environmental Policy Act.

Recommended Wilderness Area Analysis by Area

The potential recommended wilderness areas are ordered from the eastern geographic areas, starting with Ashland, to the western geographic areas, and alphabetically within each geographic area.

Cook Mountain Recommended Wilderness Area

The area description is based on the Ashland #33 wilderness inventory polygon which is 12,691 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 25. Cook Mountain recommended wilderness area

Analysis Criteria	Description
Acres	9,794 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with private landownership along portions of the north and western boundaries. The eastern boundary is buffered from adjacent roads. All lands follow the same boundaries as the Cook Mountain Low Development Area from the 1986 Custer National Forest Plan.
Description of the geography, topography, and vegetation	Much of the area is rolling hillsides. All of these lands burned during a 2012 wildfire. Current vegetation composition is 50 percent dry grass, 25 percent transitional forest, and 20 percent ponderosa pine.
Current uses and management	This area has been managed as the Cook Mountain Low Development Area from the 1986 Custer National Forest Plan and 98 percent of the area is within inventoried roadless area. All but a few acres of this area are within a permitted grazing allotment and water development features are scattered across the landscape. There are no trails or motorized over snow recreational uses.
Description of the wilderness characteristics	**Natural Quality** – As this area burned entirely within the past six or seven years, wildfire contributes to a generally natural appearance. Grazing and the associated infrastructure are found in the recommended wilderness area. Forty-five percent of the area is classified as moderate to low departure from historic vegetation conditions; forty percent of this area is classified as high departure from historic vegetation conditions. **Undeveloped** – The majority of this area is undeveloped, but affected by needs for access and water provision for cattle grazing allotments. There is a major portion of grazing allotment and primary range in the recommended wilderness area along with 17 water developments and three miles of fence. Grazing administrative motorized use is present. **Unconfined and/or primitive recreation** – This area has nonmotorized recreation opportunities and is used by the public primarily during hunting seasons. The three miles of cattle fencing could interfere with foot travel cross-country. **Solitude** –The sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This solitude can be diminished by encounters with herds of cattle or grazing permittees. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	About 98 percent of this area is included in inventoried roadless area. Much of the area is bordered by private ranch lands. Grazing and fuels management are emphasized on adjacent federal lands. Protecting adjacent lands from future fires could mean aggressively treating fuels within the recommended wilderness area. Within the boundaries are 1,405 acres of outstanding mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is affected primarily by natural forces, in this case fire. The entire area is also grazed by cattle which has impacted the ecological integrity of natural vegetation. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

King Mountain Recommended Wilderness Area

The area description is based on the Ashland #95 wilderness inventory polygon which is 10,502 acre total. This entire polygon is included as a recommended wilderness area in alternative D.

Table 26. King Mountain Recommended Wilderness Area

Analysis Criteria	Description
Acres	10,502 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with private landownership along portions of the north and western boundaries. The eastern and portions of the northern boundaries are buffered from adjacent roads. All lands but a few thousand acres to the south follow the same boundaries as the King Mountain Low Development Area from the 1986 Custer National Forest Plan.
Description of the geography, topography, and vegetation	There is a thousand foot elevation difference within the boundary. More than half the area is composed of dry grass, the remainder about equally spilt between transitional forest, ponderosa pine, then shrub land and sparse vegetation.
Current uses and management	The 1986 Custer National Forest Plan includes this entire area as a part of a low development area and virtually all of it is within an inventoried roadless area. In addition, the entire area is within an authorized grazing allotment. There are no national forest system recreation trails or motorized over snow recreational uses. Under the terms of their permit, the grazing permittee may use motorized vehicles to maintain infrastructure and administer their grazing use.
Description of the wilderness characteristics	**Natural Quality** –Currently 25 percent is classified as high and 50 percent is moderate to low departure from historic vegetation conditions. Four natural ignition fires since 2006 have been contained at 156 acres or less. Therefore, due to fire suppression and wide spread grazing, most of the current vegetation is not primarily affected by natural ecological processes and would be associated with human intervention. **Undeveloped** – Nineteen miles of grazing allotment fences dissect the area and there are 16 scattered water developments throughout as needed for grazing management. Several “cherry-stemmed” roads access the interior of the recommended wilderness area. The area has a generally natural appearance but can appear modified around pipelines, roads and water developments. **Unconfined or primitive recreation** – The area is available for non-motorized recreational use, however there are miles of internal stock fences which can affect movement cross-country. The primitive setting may be affected at times by motorized use by the grazing permittee and the presence of fences and herds of cattle. **Solitude** – There is potential for solitude as, aside from grazing permittees, there is little public use of the area except during hunting seasons. **Other Features of Value** –This area is somewhat unique on the Ashland landscape because it is relatively unroaded and comparatively undeveloped. Historically, a number of drainages with headwaters along the flanks of King Mountain divide provided access routes from O’Dell Creek to Otter Creek. Prehistoric campsites, stone circles and stone quarries are found along these routes with overlooks provided by the divide.
The ability to protect and manage the area so as to preserve its wilderness characteristics	All of this area is included in inventoried roadless area. Within the boundaries are 142 acres of outstanding and reserved mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Grazing would continue, along with the need for fences, water infrastructure and motorized access by the permittee.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The natural ecological characteristics are limited due to the historic fire suppression and ongoing grazing. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Tongue River Breaks Recommended Wilderness Area

The area description is based on portions of the Ashland #22 wilderness inventory polygon which is 22,920 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 27. Tongue River Breaks Recommended Wilderness Area

Analysis Criteria	Description
Acres	16,883 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with a small private landownership in the center, although the private lands are excluded from the recommended wilderness area proposal. Much of the boundary is defined by national forest boundary to the west and north. The boundary follows the 1986 Custer Plan's Low Development Management Area boundary.
Description of the geography, topography, and vegetation	The Tongue River Breaks varies from 3,100 feet to 4,100 feet in elevation. The river is a local geographic term describing the rugged coulees, bluffs, ridgeline rock outcrops and sandstone cliffs that provide a visual contrast to the surrounding prairies. Vegetation in this area is characterized by open canopy ponderosa pine woodland, dry grassland, Wyoming sagebrush steppe, and sparsely vegetated badlands. Ponderosa pine and mountain juniper are the only trees present in the uplands, due to limited rainfall.
Current uses and management	The 1986 Custer National Forest Plan includes this area as a low development area. All of the area is within inventoried roadless area. The entire area is within an authorized grazing allotment, which allows for motorized use throughout to administer the allotment and infrastructure repairs. There are no trails or motorized over snow recreational uses. With this area is the 464 acres of the Poker Jim Research Natural Area, where grazing also occurs. This area has one private inholding with a non-system route that is visible on the ground and used to access the property.
Description of the wilderness characteristics	**Natural Quality** – Currently 45 percent is classified as moderate to low and 40 percent is classified as high departure from historic vegetation conditions, in part due to fire suppression. Five of six natural ignition fires since 1991 have been contained at 30 acres or less; the larger one stopped at 100 acres. Therefore, due to fire suppression and wide spread grazing, most of the current vegetation is not primarily affected by natural ecological processes and would be associated with human intervention. **Undeveloped** – The entire area is actively grazed in an allotment and is primary range, has 11 water developments and seven miles of fence. There are no motorized recreational uses, however the entire area allows grazing permittee motorized access. This area has one private inholding with a non-system route that is visible on the ground and used to access the property. **Unconfined and/or primitive recreation** – The area is available for non-motorized recreational use, with no trails or other recreation facilities and would provide the public with opportunities for unconfined and primitive recreation. However, range fencing may impede public travel. This area offers recreation opportunities such as hunting. **Solitude** – Opportunities for solitude can be found within the recommended wilderness area but would be disrupted in all settings during periods when ongoing motorized administrative access is needed for grazing allotment management. **Other Features of Value** – The Tongue River Breaks area are an especially important landscape to the Northern Cheyenne who collected plants, buried their ancestors, and left rock imagery, cairns and campsites. A number of landmarks such as the "stone teepee" have important stories associated with them. A few homesteads are found along the old wagon road from Tongue River to Otter Creek, as well as Fraternity Wall where a number of inscriptions mark their passing.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	All of this area is included in inventoried roadless areas. The area has one private inholding with a non-system route that is visible on the ground and used to access the property.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of the designation.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The natural ecological characteristics are limited due to historic fire suppression and ongoing grazing. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Bear Canyon Recommended Wilderness Area

The area description is based on the Pryors #9 wilderness inventory polygon which is 41,976 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D. Of the Pryors #9 polygon, 10,366 acres are proposed in the Bear Canyon Recommended Wilderness Area and 12,737 acres in are proposed in the Big Pryor Recommended Wilderness Area.

Table 28. Bear Canyon Recommended Wilderness Area

Analysis Criteria	Description
Acres	10,366 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with its southern boundary along the national forest boundary, then bounded on the north, west and east by national forest system trails that are open to all vehicles.
Description of the geography, topography, and vegetation	Bear Canyon is the largest canyon locally, with three drainages and very steep sidewalls. It is generally naturally appearing consisting of open sage covered slopes at the lower elevations, timber covered slopes at mid to upper elevations and large expanses of open meadow/high elevation grass at the upper elevations.
Current uses and management	None of this area is included in inventoried roadless area and there are no trails. There are 9,627 acres within a grazing allotment in the recommended wilderness area. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping 3,936 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** –More than half of the area is classified as in departure from historic vegetation conditions. Due to grazing and the lack of natural fire, ecological conditions that would be associated with the area without human intervention may be limited. **Undeveloped** – The majority of the recommended wilderness area is a major portion of one allotment and primary range within the recommended wilderness area, along with seven water developments and 2.5 miles of fence. There are no recreational motorized uses, but motorized access would be allowed for the grazing permittee and infrastructure would be maintained. **Unconfined and/or primitive recreation** – The area is available for summer non-motorized recreational use. This area has opportunities for unconfined and primitive recreation, however much of the terrain is very rugged. **Solitude** – There is opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. This diminishes in areas closer to the all vehicle trails adjacent to boundaries. **Other Features of Value** –This area contains some of the most unique cultural sites in the Pryor Mountains, including homesteads, lodges, cribbed log structures, and mines.
The ability to protect and manage the area so as to preserve its wilderness characteristics	None of this area is included in inventoried roadless areas. There are no motorized summer recreational uses however grazing permittees would be able to continue their permitted motorized use, along with maintenance of infrastructure. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 3,936 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The undeveloped quality of the area is lower where grazing infrastructure exists and then higher where there are no administrative motorized uses or developments. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude due to rugged terrain. There are opportunities for primitive and/or unconfined recreation.

Big Pryor Recommended Wilderness Area

The area description is based on the Pryors #9 wilderness inventory polygon which is 41,976 acres total. Portions of the polygon are included as a recommended wilderness area in alternative D. Of the Pryors #9 polygon, 10,366 acres are proposed in the Bear Canyon Recommended Wilderness Area (see that narrative for those details) and 12,737 acres are proposed in the Big Pryor Recommended Wilderness Area.

Table 29. Big Pryor Recommended Wilderness Area

Analysis Criteria	Description
Acres	12,737 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land. The northern boundary buffers Forest Service Road #2308, spur roads and a water pipeline. The southern boundary buffers trails #1091, #2850 and #2496. The western boundary follows the forest boundary and the eastern boundary buffers road #2085.
Description of the geography, topography, and vegetation	The Big Pryor area is generally naturally appearing consisting of open sage covered slopes at the lower elevations, timber covered slopes at mid to upper elevations and large expanses of open meadow/high elevation grass at the upper elevations.
Current uses and management	None of this area is included in inventoried roadless areas. Within these recommended wilderness area boundaries are three allotments with 12,622 acres of grazing or virtually the entire area. There are a total of 10.5 total miles of Forest Service system trail, with 4.78 miles of motorized trails on which bikes are also allowed. There are another 5.73 miles of nonmotorized trails that allow bikes. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 9,376 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** –More than half of the area is classified as departed from historic vegetation conditions. Much of the area has been grazed for a number of years. Due to grazing and the lack of natural fire, ecological conditions that would be associated with the area without human intervention may be limited. **Undeveloped** – The majority of this area is undeveloped however there are areas with water infrastructure for cattle grazing. There are numerous abandoned mine sites, which vary in degree of their noticeability on the landscape. Grazing permittees would be able to continue their permitted motorized use. There are three separate grazing allotments, one with a minor portion of an allotment and no primary range within the recommended wilderness area; another with a portion of the allotment and minor primary range in the recommended wilderness area along with 0.3 mile of fence and six water developments. The third has a portion of allotment and primary range along with six water developments and three miles of fence. **Unconfined and/or primitive recreation** – This area has a high amount of unconfined and primitive recreation opportunities, however much of the terrain is very rugged and difficult to access. **Solitude** – Most of the area provides for low levels of solitude because of the existing roads and motorized trails that run along the ridges between the canyons and across the top of the mountains. Away from these boundaries, opportunities increase due to large expanses of terrain. **Other Features of Value** –This area contains some of the most unique cultural sites in the Pryor Mountains including homesteads, lodges, and cribbed log structures.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	None of this area is included in inventoried roadless areas. In alternative D, motorized and mechanized recreation uses would no longer be suitable on 4.8 miles of motorized trail and another 5.7 miles of mechanized trail. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 9,376 acres in alternative D. Grazing permittees would be able to continue their permitted motorized use.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: Many areas influenced by years of grazing and lack of natural fire have departed from historic vegetation conditions. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers some areas of high opportunity for solitude due to rugged terrain. There are opportunities for primitive and/or unconfined recreation.

Lost Water Canyon Recommended Wilderness Area

The Lost Water Canyon Recommended Wilderness Area was included in the 1986 Custer National Forest Plan, and follows the same boundaries in alternatives A, B, and C. For those alternatives, the area description is based on the Pryors #1 wilderness inventory polygon which is 13,547 acres total. In alternative D, the recommended wilderness area would nearly double in size, as more of Pryors #1 wilderness inventory polygon and almost all of the 1,152 acre Pryors #96 wilderness inventory polygon are also included.

Table 30. Lost Water Canyon Recommended Wilderness Area

Analysis Criteria	Description
Acres	6,804 acres (alternative A, B, C); 12,992 acres (alternative D)
Description of the recommended boundary - alternative A, B and C	In alternatives A, B and C, the recommended wilderness area is contiguous land comprised of part of Pryors #1 wilderness inventory polygon, and follows the 1986 recommended wilderness area boundary. The eastern boundary is the line for the Pryor Mountain Wild Horse Territory. The recommended wilderness area includes none of wild horse territory and includes all of the Lost Water Canyon Research Natural Area.
Description of the recommended boundary – alternatives D	In alternative D, the recommended wilderness area is comprised of two separate parts, divided by the Burnt Timber road, #2849. Compared to alternatives A, B and-C, the boundary of the first part extends furthers southwest where it is buffered by Forest Roads 2085 and 2092 and further east to Forest Road #2849. The recommended wilderness area also includes Pryor #1 wilderness inventory polygon and extends to the forest boundary to the east and south. The west side portion is 11,930 acres and the east side 1,062 acres.
Description of the geography, topography, and vegetation	The area consists of subalpine meadows and subalpine fir at higher elevations with lodgepole, Douglas fir, ponderosa pine and dry shrub lands/grasslands at lower elevations. There are deep rugged canyons with Crooked Creek, Commissary Creek, Cave Creek and Lost Water Creek running between them.
Current uses and management	The recommended wilderness area is almost entirely within inventoried roadless areas and contains the Lost Water Canyon Research Natural Area. The 1986 Custer National Forest Plan included as recommended wilderness area the 6,800 acres as mapped in alternatives A, B, and C. In alternatives A, B and C there are no grazing allotments or infrastructure. Alternative D would include 1,681 acres of a grazing allotment (a portion of the allotment and primary range) with one water feature, where motorized access is authorized for the grazing permittee. In alternative D the Forest Service lands within the Pryor Mountain Wild Horse Territory are almost entirely included. Routine wild horse management activities include population counts, immuno-contraception darting, bait trapping, periodic gathers, research activities, and weed treatment. Forest Road #2849 is an open road providing access to the area, including visitors to the Wild Horse Territory. Cross-country motorized use is authorized for administration within the Territory as required. There are no motorized trails, with only 0.12 miles of a hiker only trail included. In alternative A, B, and C, no motorized over is allowed within the recommended wilderness area boundary. In alternative D, 4,448 acres mapped as a winter motorized recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** – In alternatives A, B and C, much of the area is classified as moderate to low departure from historic vegetation. Within the research natural area, the majority of the area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. The Wild Horse Territory portion of alternative D appears generally modified due to wild horse grazing. There is a ¼ acre fenced area as a study enclosure. Ninety-five percent of the vegetation is categorized as being moderate to low departure from historic vegetation conditions. **Undeveloped** – In alternatives A, B and C, the majority of the recommended wilderness area is undeveloped and not affected by human intervention. In alternative D, the Burnt Timber road would remain open between the two parts of this recommended wilderness area. Alternative D would include 1,681 acres of a grazing allotment with one water feature, where motorized access would be authorized for the grazing permittee. **Unconfined and/or primitive recreation** – This area has a high amount of unconfined, cross-country recreation opportunities. The open road between two parts of the recommended wilderness area would create difficulty for those seeking a wilderness experience. **Solitude** – Access into the canyons is difficult due to the limestone cliffs that rim most of them creating high level opportunities for solitude and high levels of challenge. **Other Features of Value** – Unique characteristics include caves and scenic canyons found within portions of the area that overlaps with the Lost Water Canyon Research Natural Area (approx. 2,800 acres). Rock shelters, caves and sinkholes dot this area, most of which were occupied and/or used by aboriginal people.
The ability to protect and manage the area so as to preserve its wilderness characteristics	In alternatives A, B and C, the recommended wilderness area is entirely within inventoried roadless area. The recommended wilderness area encompasses nearly an entire watershed, (research natural area) in pristine condition. In alternatives A though D, there are no summer recreational motorized uses. In alternative D motorized cross-country use would continue to be authorized for management of the Pryor Mountain Wild Horse Territory and the grazing permittee. The active management actions required of the herd of horses within the Wild Horse Territory are out of character with wilderness character, where natural processes dominate. The Burnt Timber road would remain open between the two parts of this recommended wilderness area. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 4,448 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	The recommended wilderness area described In Alternatives A, B and C was previously included as a recommended wilderness area in the 1986 Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area, and public comments requesting a larger recommended wilderness area than was included in the 1986 Forest Plan.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: Within the portion of the recommended wilderness area described in alternatives A, B and C, and within the research natural area in particular, the naturalness of the area is very high as it is affected primarily by natural forces and has mostly intact ecological integrity. A range water development is noted in alternative D. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Punch Bowl Recommended Wilderness Area

The area description is based on the Pryors #10 wilderness inventory polygon which is 8,125 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 31. Punch Bowl Recommended Wilderness Area

Analysis Criteria	Description
Acres	7,766 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the northern boundary following the National Forest boundary. The eastern boundary continues to follow the forest boundary, excluding private lands. The southern boundary largely buffers the Forest Road #2308 (the Pryor Mountain Road). The western boundary buffers private inholdings and Forest Road #2144. Forest Road #2144 is "cherry-stemmed" nearly the entire northwest portion of the recommended wilderness area.
Description of the geography, topography, and vegetation	This area is generally natural appearing consisting of steep timber covered slopes in the Punchbowl Creek drainage and north facing slopes below Dry Head Vista. Open meadow/high elevation grass at the upper elevation is found around Dry Head Vista. Current vegetation composition is about half Douglas fir, the remainder lodgepole pine and dry grass.
Current uses and management	None of the area is within an inventoried roadless area. There are 4,778 acres within four grazing allotments, water structures for grazing and 1.7 miles of fence lines within the recommended wilderness area. There are no system trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 4,106 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is categorized as in departure from historic vegetation conditions, likely due to grazing and suppression of natural fire. **Undeveloped** – Forest Road #2144 nearly dissects the northwest portion of the recommended wilderness area. There are parts of four different grazing allotments with the recommended wilderness area. One allotment is almost entirely within the recommended wilderness area and is primary range, with 1.7 mile fence and one water development, a second allotment also has a water development. The fourth allotment is entirely within the recommended wilderness area and is primary range. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities for those seeking cross-country travel. **Solitude** – No roads or trails provide access to the area east and south of Forest Road #2144, creating opportunities for primitive recreations and solitude once away from open motorized routes, including Forest Road #2308. **Other Features of Value** – This area encompasses a continuation, both to the east and west, of sites related to the use of Dryhead overlook by the Crow. The viewshed into Punch Bowl is an integral part of these traditional activities. A number of rock shelters used by aboriginal people are located within the Punch Bowl. The upper reaches of Sage Creek contains the remains of homestead activity. There are three known caves in the area.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	None of this area is included in inventoried roadless areas. Adjacent lands to the north are within the Crow Indian Reservation. Lands to the east contain private ranches used for ranching and recreation. Pryor Mountain Road #2308 delineates the southern boundary and is considered a main access route within this mountain range. A commercial communication site located along the road outside the recommended wilderness area is operated under special use authorization. Manageability as wilderness of the area in its entirety would be challenging with the long motorized incursion, as Forest Road #2144 nearly dissects the northwest portion of the recommended wilderness area. This road would make the 7,766 acre recommended wilderness area more difficult to manage for wilderness characteristics. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 4,106 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is higher where it is affected primarily by natural forces. Other areas influenced by years of grazing and lack of natural fire have departed from historic vegetation. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers some areas of high opportunity for solitude due to rugged terrain. There are opportunities for primitive and/or unconfined recreation.

Burnt Mountain Recommended Wilderness Area

The Burnt Mountain Recommended Wilderness Area had 3,917 acres included in the 1986 Custer National Forest Plan. The area description is based on the AB #11 wilderness inventory polygon which is 34,613 acres total. The 3,917 acres described in alternative A are included in a larger recommended wilderness area in alternative D.

Table 32. Burnt Mountain Recommended Wilderness Area

Analysis Criteria	Description
Acres	3,917 acres (alternative A)
Description of the recommended boundary - alternative A	The recommended wilderness area is contiguous land and follows the recommended wilderness area boundary of the 1986 Custer Forest Plan. It follows the existing the Absaroka-Beartooth Wilderness boundary to the west, buffers the West Fork Rock Creek road to the south, private lands to the east, and east/west section lines to the north, about a mile south of the forest boundary.
Description of the geography, topography, and vegetation	Much of the area is rugged and very steep, with Douglas fir and whitebark pine, along with transitional forest.
Current uses and management	The 1986 Custer National Forest Plan included this area as a recommended wilderness area. The area is entirely within inventoried roadless area. There are no trails or easy access. The eastern boundary is near the Red Lodge Mountain ski area. There are no motorized recreation uses.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses or grazing infrastructure. The eastern boundary is near the Red Lodge Mountain downhill ski area. In the northeastern corner, 110 acres are a small portion of a grazing allotment with no infrastructure. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities for those cross-country uses. **Solitude** – There are good opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance, with the exception of the eastern boundary influenced by the nearby Red Lodge Mountain downhill ski area. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area has been managed as a recommended wilderness area since 1986. The area is all within inventoried roadless area. The area is near a downhill ski area along the eastern boundary.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	This area was previously included as a recommended wilderness area in the 1986 Custer Forest Plan. There were public comments received in favor of recommended wilderness area designation for wilderness inventory polygon AB #11, which includes this area.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, and has mostly intact ecological integrity. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude, once away from the eastern boundary. There are opportunities for primitive and/or unconfined recreation.

Chico Peak Recommended Wilderness Area

The area description is based on the AB #15 wilderness inventory polygon which is 56,221 acres total. A portion of this polygon is included as the Chico Peak Recommended Wilderness Area in alternative D. Other portions of this polygon are included in the Dome Mountain and Emigrant Peak recommended wilderness areas in alternative D.

Table 33. Chico Peak Recommended Wilderness Area

Analysis Criteria	Description
Acres	7,036 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is continuous land. Located south and east of the town of Emigrant, the boundaries start a short distance from Chico Hot Springs and follow the forest boundaries to the north, then buffer roads to the east, south and west.
Description of the geography, topography, and vegetation	Much of the area is moderately steep leading up to and including Chico Peak in the center. Steeper creeks flow off the peak. Current vegetation composition is mostly Douglas fir and lodgepole pine, and the remaining split among dry grass, whitebark pine and transitional forest.
Current uses and management	Virtually the entire area is within inventoried roadless area. There are 130 acres from one grazing allotment within the recommended wilderness area. The boundaries are close to Chico Hot Springs, a major resort in the Paradise Valley. There are no trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 7,036 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** –There have been six recent fires suppressed in the area since 1989, all of them 4,500 acres or less. The suppression of natural fire plays a part in the forty percent of the area showing in moderate to high departure from historic vegetation condition. Ranches and private ownership are adjacent to the recommended wilderness area, making this area part of the wildland urban interface. **Undeveloped** – There is one grazing allotment with a minor portion of allotment and primary range in the recommended wilderness area. Only a small portion of the area is within grazing allotment. Abandoned mines are scattered in areas close to the road buffers. There are no summer motorized or mechanized uses. **Unconfined and/or primitive recreation** – The recommended wilderness area has no trail system and features Chico Peak in the center for cross-country recreation access. Nearby is Mill Creek, a very popular developed recreation corridor. **Solitude** – As this is a roadless area without trails, the inner core of this area should offer opportunities for solitude. The sights and sounds of the Paradise Valley and Highway 89 would likely reach this area. **Other Features of Value** – Chico Peak.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Virtually the entire area is within inventoried roadless area. Motorized administrative use may be authorized for the grazing permittee. Allowing the natural role of fire to occur where boundaries are shared with private lands in the WUI would be difficult. There are mining claims present in the recommended wilderness area. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. In 2018 the Secretary of Interior signed a 20 year locatable mineral withdrawal for portions of this recommended wilderness area, meaning new locatable mineral claims cannot be filed, and any current claims need to have a valid existing rights determination for future locatable minerals use. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 7,036 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high in places, however fire suppression and minor grazing has affected historic vegetation conditions. The area is largely undeveloped. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude and off-trail travel. There are opportunities for primitive and/or unconfined recreation.

Deckard Flats Recommended Wilderness Area

The area description is based on the AB #52 wilderness inventory polygon which is 2,460 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 34. Deckard Flats Recommended Wilderness Area

Analysis Criteria	Description
Acres	935 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land bordered to the south by Yellowstone National Park. The western and eastern boundaries are buffered from the Jardine road to the west and Crevice Mountain road to the east.
Description of the geography, topography, and vegetation	Much of the area is relatively flat, with current vegetation composition about half dry grass, the rest shrub land, and a small amount of Douglas fir.
Current uses and management	This recommended wilderness area is near the towns of Gardiner and Jardine and almost the entire area is within inventoried roadless area. There are a mixture of activities occurring on adjacent and nearby private lands, including ongoing mining activity and associated infrastructure, a guest ranch and private summer cabins. The area contains a small segment of 0.86 miles of trail open to hiker/horse only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 81 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is in moderate to high departure from historic vegetation conditions, with weed infestations dominating the conditions. **Undeveloped** – Powerlines are along the western and eastern boundaries. **Unconfined and/or primitive recreation** – Once away from the town of Gardiner there are some opportunities for foot and stock trail use which provides for primitive recreation**.** **Solitude** –Most of Deckard Flats is visible from the Jardine Road and a local outfitter has outfitter trails as well as authorization to provide numerous day rides in the area which affects opportunities for solitude during the operating season. **Other Features of Value** –None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Almost the entire area is within inventoried roadless area. This small 935 acre area qualified to be within the wilderness inventory based on the shared boundary with land Yellowstone National Park manages as recommended wilderness. The small size presents difficulty to be a manageable “stand alone” Forest Service recommended wilderness area. It is surrounded on two sides by roads, and is a short distance from the town of Gardiner, Montana. The vegetation is dominated by weeds and nonnative species. Within the boundaries are 32 acres of outstanding mineral rights. There could be potential impacts resulting from mineral actions, thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 81 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for inventoried roadless areas.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is poor, due to weeds and nonnative species. Powerlines are along the western and eastern boundaries. The social characteristics that provide the basis for suitability include: The area offers limited opportunities for solitude. There are some opportunities for primitive recreation**.**

Deer Creek Recommended Wilderness Area

The area description is based on the AB #32 wilderness inventory polygon, which is 129,575 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 35. Deer Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	85,444 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the northern boundary following Forest Service ownership and/or the forest boundary, and road buffers for West Deer Creek road 421, 2660-series roads, and Iron A 482-A. The eastern boundary follows the section lines to the forest boundary. The southern boundary buffers the 249-series roads, Meyers Creek county road, Meyers Creek Work Center Road 2143, Picket Pin Road 2140, 140-series roads, and the Absaroka-Beartooth Wilderness boundary. The western boundary follows Forest Service ownership and/or the forest boundary and section lines, a buffer on Main Boulder Road 298, East Boulder Road 205, Lewis Gulch Road 6644, Dry Fork Road 6645, and Elk Creek Road 2606.
Description of the geography, topography, and vegetation	Largely bordering private ranchlands, much of the terrain is unique for this region with lower elevations and undulating foothills, more comparable to the eastern side of the forest. Current vegetation composition is 35 percent transitional forest, 25 percent Douglas fir, 15 percent lodgepole pine, and ten percent whitebark pine. The remaining vegetation is split between dry grass and sparse vegetation. Thousands of acres burned in the Derby Fire in 2006.
Current uses and management	The area is eighty-nine percent within inventoried roadless area. Thirteen grazing allotments total 65,007 acres (approximately seventy-six percent) of this recommended wilderness area. Deer Creek offers a total of 87.9 miles of trail. There are 6.78 miles of trail open to all-terrain vehicles and bicycles, 35.65 miles of non-motorized trails open to bicycles and about 45.46 miles of motorcycle trails also open to bicycles. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 62,477 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** –About 65 percent of the area is classified as moderate to high departure from historic vegetation. The majority of the area is in grazing allotments, and several thousand acres of weeds have been inventoried. The large fire in 2006 may help restore some natural qualities, but also contributes to weeds. This area contains acres of prior timber harvest which were burned over in 2006, removing some of the substantially noticeable indications of prior treatment, such as stumps and changing vegetation boundaries. **Undeveloped** – The recommended wilderness area has thirteen grazing allotments. There are twelve miles of fence lines and 48 water developments. The majority of this area is affected by grazing allotments and motorized use. There are abandoned mines scattered throughout the area. There are approximately 88 miles which would no longer be suitable for motorized or mechanized trail recreation use in alternative D. **Unconfined and/or primitive recreation** – This area has been noted as offering the most motorized/mechanized recreational trail use on the western portion of the forest, therefore it does not currently offer primitive recreation opportunities. **Solitude** – This area is noted for motorized use, so noise from that use would intrude on opportunities for solitude. There are busy, recreationally-used road corridors which penetrate into the area on multiple sides. Only a very short segment of Deer Creek Recommended Wilderness Area shares a boundary with the existing wilderness. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area is eighty-nine percent within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There are 12 miles of range fence and 48 water developments in the recommended wilderness area, which would continue under grazing allotments. There are mining claims present in the RWA. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Mechanized and motorized uses would no longer be suitable on about 88 miles of rails in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 62,477 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is affected by grazing and weeds. Areas that burned in 2006 may have more natural characteristics. Some areas of previous timber harvest are included. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The recommended wilderness area offers limited areas which offer opportunity for solitude.

Dome Mountain Recommended Wilderness Area

The area description is based on the AB #15 wilderness inventory polygon, which is 56,221 acres total. A portion of this polygon is included as the Dome Mountain Recommended Wilderness Area in alternative D. Other portions of this polygon are included in the Chico Peak and Emigrant Peak Recommended Wilderness Areas in alternative D.

Table 36. Dome Mountain Recommended Wilderness Area

Analysis Criteria	Description
Acres	9,540 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land extending around Dome Mountain then to the east. The northern boundary follows the forest boundary and the eastern boundary buffers short sections of roads then follows the adjacent Absaroka-Beartooth Wilderness boundary. The western boundary follows Forest boundaries, excludes the road to the OTO Ranch, then buffers Highway 89 to tie back in to the forest boundary.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep around Dome Mountain, and includes slopes above Highway 89 a few miles from Gardiner, Montana. Current vegetation composition is mostly Douglas fir and lodgepole pine, and the remaining is dry grass, whitebark pine and transitional forest.
Current uses and management	About seventy-six percent of the area is within inventoried roadless area. The area contains two grazing allotments for a total of 5,946 acres, a little over sixty percent of the area. The permittee is authorized motorized access through their permit to administer their allotment. There are 4.53 total miles, of which 4.52 miles are open to mechanized use. There are no motorized trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 51 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – There have been six recent fires suppressed in the area since 1989, all of 4,500 acres or less. The suppression of natural fire plays a part in the forty percent of the area showing in moderate to high departure from historic vegetation. Adjacent ranches and private ownership make this area part of the wildland urban interface. A large amount of the recommended wilderness area is within grazing allotments, which has also played a part in the current vegetation being departed from historic conditions. Weed infestations have been inventoried and mapped. **Undeveloped** – There is almost an entire range allotment and primary range with 6.8 miles fence and five water developments. There are no summer motorized recreational uses. **Unconfined and/or primitive recreation** – This area offers unconfined recreation, with only five miles of trail. **Solitude** – The inner core of this area should offer opportunities for solitude although the sights and sounds of the Paradise Valley and Highway 89 would likely reach this area. **Other Features of Value** – Dome Mountain.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	About three quarters of the area is within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There are no summer motorized recreational uses, however the grazing permittee would retain motorized access to administer their allotment, and fence lines and water development would be maintained. Mechanized recreation uses would no longer be suitable on four and a half miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 51 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has been affect by lack of natural fire and grazing, fence lines and water developments. Weed infestations have been inventoried and mapped. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude within the core of the recommended wilderness area, otherwise the area is affected by development along boundaries that aren't shared with the wilderness. The area offers unconfined recreation

East Rosebud to Stillwater Recommended Wilderness Area

The area description is based on the AB 16 wilderness inventory polygon which is 24,886 acres total. Portions of the polygon are included as the East Rosebud to Stillwater Recommended Wilderness Area in alternative D. Another portion of this polygon is included as the Mystic Recommended Wilderness Area in alternatives A, B, C and D.

Table 37. East Rosebud to Stillwater Recommended Wilderness Area

Analysis Criteria	Description
Acres	17,422 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is comprised of three separate parts, separated by the West Rosebud Road. The western boundary of the northern piece, at 14,545 acres, follows the Absaroka-Beartooth Wilderness boundary. The northern boundary buffers roads, the eastern boundary follows the forest boundary, and the southern boundary buffers the West Rosebud Road. The second parcel at 2,842 acres is south of West Rosebud Creek and is defined on all sides by the forest boundary and the existing wilderness boundary. The third piece consisting of 395 acres is comprised of the south side of Mystic Lake and lands between Mystic Dam and the road end.
Description of the geography, topography, and vegetation	The area is generally natural appearing consisting of steep timber covered slopes adjacent to the wilderness that connect to the higher elevations and sub alpine tundra plateaus. Current vegetation is half lodgepole, fifteen percent Douglas fir with the remainder dry grass and sparse vegetation.
Current uses and management	Eighty-one percent of the recommended wilderness area is within inventoried roadless area. There are three grazing allotments totaling 4,526 acres (about twenty-five percent) of this recommended wilderness area. The area offer a total of 5.37 miles of trail, with 2.11 miles of nonmotorized trail open to mechanized use. There are no motorized summer trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 695 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Two natural fires are recorded since 1996, one about 1,500 acres the other only 230 acres. Due to the long boundary with private lands, natural fires have been suppressed in this area. Due to grazing and fire suppression, about forty percent of the area has a moderate to high level of departure from historic vegetative conditions. **Undeveloped** – There are three separate grazing allotments in the recommended wilderness area. All have just a portion of the allotments and primary range in the recommended wilderness area; one has 0.5 mile of fence. The majority of this area is undeveloped. There are no summer motorized uses. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities, mostly horse use and hiking. The area is close to the town of Red Lodge, Montana, so it is not an isolated location. **Solitude** – The area is dissected by highly used recreational road corridors and includes many of the very popular corridors into the wilderness. Areas with cross-country travel near the existing wilderness boundaries would provide better opportunities for solitude. **Other Features of Value** – This area has premier recreation opportunities on a local, regional and national level. The area includes many of the very popular corridors into the wilderness.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Slightly over eighty percent of the recommended wilderness area is within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. Within the recommended wilderness area boundaries are 0.22 acres of oil and gas leases and mining claims. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Mechanized recreation uses would no longer be suitable on about two miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 695 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The undeveloped quality of the area is high and there are no summer motorized uses. The social characteristics that provide the basis for suitability include: The area offers some areas of opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Emigrant Peak Recommended Wilderness Area

The area description is based on the AB #15 wilderness inventory polygon which is 56,221 acres total. A portion of this polygon is included as the Emigrant Peak Recommended Wilderness Area in alternative D. Other portions of this polygon are included in the Chico Peak and Dome Mountain Recommended Wilderness Areas in alternative D.

Table 38. Emigrant Peak Recommended Wilderness Area

Analysis Criteria	Description
Acres	15,829 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land which meanders around Emigrant Peak. The southern boundary is adjacent to the Absaroka-Beartooth Wilderness boundary. The western boundary follows the forest boundary, then buffers the North Fork Sixmile Road. The northern boundary follows the forest boundary, then uses a north/south township and range line to create a portion of the eastern boundary. From there the eastern boundary buffers private lands in Emigrant Gulch and roads. The southeastern boundary buffers Mill Creek Road in one corner.
Description of the geography, topography, and vegetation	Much of the area is very steep hillside up Emigrant Peak. Current vegetation composition is Douglas fir, followed by lodgepole pine, and the remaining is dry grass, transitional forest, and sparse vegetation.
Current uses and management	Seventy-three percent of the area is within inventoried roadless area. There are two grazing allotments totaling 5,122 acres. The area offers a total of 5.53 miles of trail, with no motorized summer trails, but there are about 4.86 miles of non-motorized trail open to mechanized recreation use. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 4,856 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – There have been six recent fires suppressed in the area since 1989, all of 4,500 acres or less. The suppression of natural fire plays a part in the forty percent of the area in moderate to high departure from historic vegetation conditions. Adjunct ranches and private ownership make this area part of the wildland urban interface. About a third of the area is within grazing allotments. **Undeveloped** – There are two grazing allotments, one is a portion of the allotment and primary range. The other is almost the entire allotment and primary range along with 1.8 miles of fence, four water developments, and 0.8 miles of pipeline. There are no summer motorized recreational uses. There are a series of abandoned mines. **Unconfined and/or primitive recreation** – This area has opportunities for off–trail travel over much of the acreage, with only five miles of trail within the boundaries. **Solitude** – There is limited access and much of it is a steep hillside up Emigrant Peak. There are opportunities for solitude, although the sights and sounds of the Paradise Valley and Highway 89 may be within reach. **Other Features of Value** – Emigrant Peak.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	About three quarters of the area is within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. Within the boundaries are 31 acres of outstanding mineral rights and 623 acres of oil and gas leases, and mining claims. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. In 2018 the Secretary of Interior signed a 20 year locatable mineral withdrawal for portions of this recommended wilderness area, meaning new locatable mineral claims cannot be filed, and any current claims need to have a valid existing rights determination for future locatable minerals use. Motorized administrative use may be authorized for the grazing permittee. Mechanized recreation uses would no longer be suitable on 4.86 miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 4,856 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high in places, however fire suppression and minor grazing has affected historic vegetation conditions. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Knowles Peak Recommended Wilderness Area

The area description is based on the AB #84 wilderness inventory polygon which is 2,497 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 39. Knowles Peak Recommended Wilderness Area

Analysis Criteria	Description
Acres	1,223 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land buffered to the north, west and south by roads and the Absaroka-Beartooth Wilderness to the east. Portions of the northern and southwestern boundaries are adjacent to privately owned lands.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep with existing vegetation primarily Douglas-fir forest, along with small amounts of dry grass, and transitional forest. A non-prescribed fire of almost 500 acres burned in 2007, with five acres of trees planted in 2010.
Current uses and management	Ninety-seven percent of the area is within inventoried roadless area. Four acres are within the East Fork Mill Creek Research Natural Area. There are a total of 2.93 miles of trail in the recommended wilderness area, with 2.08 miles of non-motorized trails open to mountain bikes. A small segment of 0.85 miles is open to hiker/horse only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 1,223 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Weed infestations of about 100 acres have been tallied in surveys. About 75 percent of the area is in moderate to high departure from historic vegetation conditions. Five acres of trees were planted in 2010. The recommended wilderness area is generally naturally appearing with few developments. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no summer motorized uses, however the entire area is open to winter motorized over-snow use. One abandoned mine is recorded. **Unconfined and/or primitive recreation** – This area has opportunities for unconfined and primitive recreation opportunities, once away from adjacent boundaries. **Solitude** – Sights and sounds from the Mill Creek roads, nearby motorized trails and adjacent private property influence opportunities for solitude in the area. There is opportunity for solitude and primitive recreation once away from the Mill Creek and East Fork Mill road corridors. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The recommended wilderness area is almost entirely within inventoried roadless area The steep and rugged terrain, limited infrastructure and adjacency to wilderness would provide for manageability as wilderness in portions of the area away from the influence of the Mill Creek Road, the East Fork Mill Creek road and the private ranch inholdings. Mechanized recreation uses would no longer be suitable on 2.08 miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 1,223 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has been altered by vegetation not being within the historic conditions, but is generally naturally appearing with few developments. The social characteristics that provide the basis for suitability include: The area offers some opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Line Creek Plateau Recommended Wilderness Area

The Line Creek Plateau Recommended Wilderness Area, as described in alternatives A, B and C, was included in the 1986 Custer National Forest Plan. The area description is based on the AB #57 wilderness inventory polygon for alternatives A, B, and C. In Alternative D, a portion of AB #6 wilderness inventory polygon is added to this recommended wilderness area. The boundary is nearly the same for alternatives A, B, and C, and expands in alternative D.

Table 40. Line Creek Plateau Recommended Wilderness Area

Analysis Criteria	Description
Acres	809 acres (alternative A); 801 acres (alternatives B and C); 26,605 acres (alternative D)
Description of the recommended boundary - alternative A, B, C	In alternatives A, B, and C the recommended wilderness area is contiguous land with its southern boundary adjacent to the Absaroka-Beartooth Wilderness, and remaining boundaries buffered from the Beartooth Highway and Rock Creek Road. The recommended wilderness area is slightly smaller in alternatives B and C to provide a larger trailhead buffer.
Description of the recommended boundary – alternatives D	In alternative D, the recommended wilderness area is comprised of two separate parts, divided by the Beartooth Highway. The same boundaries west of the Beartooth Highway used in alternatives B and C are included, and expanded by over 25,000 acres east of the Highway. Most of the Custer Gallatin National Forest portion (16,127 acres) of the Line Creek Plateau Research Natural Area (RNA) is included in alternative D. The boundaries of the added area buffer the Beartooth Highway to the west and northwest; follow the forest boundary to the north, south and east; and buffer roads in the southeast.
Description of the geography, topography, and vegetation	In alternatives A through C, steep hillsides rise on the northwest part of the recommended wilderness area. As the area circles the plateau there is less elevation change closer to the Beartooth Highway. Vegetation ranges from dry grass, lodgepole, and whitebark pine. In alternative D, elevation ranges from about 7,400 to 10,900 feet. The Line Creek Plateau Research Natural Area is characterized by extensive areas of alpine tundra vegetation, a cirque basin with alpine lakes and ponds, and many unique plant species. It is the easternmost, warmest alpine plateau in the Beartooth Mountains. The area is composed of alpine snow beds, alpine wetlands, alpine turf, alpine cushion plants (compact, low growing, mat forming plants), alpine grasslands, conifer forests, and shrublands. The majority of the forested portions on the east flank of the research natural area experienced high burn severity from the 2011 Hole-in-the-Wall Fire.
Current uses and management	In alternatives A, B, and C all of the recommended wilderness area is also within inventoried roadless area. The 1986 Custer National Forest Plan included the area in alternatives A, B and C as a recommended wilderness area. There are no grazing allotments. There are no trails in alternatives A, B or C; however there are 26.02 miles of non-motorized trail open to mechanized recreation uses in alternative D. In alternative D, eighty-nine percent of the area is within Inventoried Roadless. Alternative D has one grazing allotment with 598 acres, a portion of the allotment and primary range in the recommended wilderness area. Motorized use, without roads, may be authorized for the permittee to administer their allotment. The grazing allotment is not within the Line Creek Plateau Research Natural Area. Areas mapped as a motorized winter ROS are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping in alternative D only, 1,023 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** – In alternatives A, B and C there are no grazing allotments or infrastructure. In alternative D there are 598 acres of grazing allotment, with no infrastructure. The majority of this area is undeveloped and not affected by human intervention. There are no motorized recreational uses in alternatives A, B, and C, however 1,023 acres is open to winter motorized over-snow use in alternative D. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, and hunting. **Solitude** – Due to the flat, and open topography, sounds from the highway can be heard, impacting a feeling of isolation or solitude. **Other Features of Value** – The Line Creek Plateau Research Natural Area was established as a landscape scale research natural area and consists of lands managed by the Custer Gallatin and Shoshone National Forests. This research natural area is characterized by extensive areas of alpine tundra vegetation, a cirque basin with alpine lakes and ponds, and many unique plant species. It is the easternmost, warmest alpine plateau in the Beartooth Mountains. The area is composed of alpine snow beds, alpine wetlands, alpine turf, alpine cushion plants (compact, low growing, mat forming plants), alpine grasslands, conifer forests, and shrublands. Of the 21 vegetation types, 17 meet research natural area network-targeted vegetation types (nine alpine, seven coniferous, and one shrubland). There are several rare plant species and many plant species that are disjunctive from the main portion of their range in the arctic.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Alternatives A, B, C and D have approximately 800 acres that have been managed as recommended wilderness area since 1986, and this area is within inventoried roadless area. Under alternative D, mechanized recreation use would no longer be suitable on 26.02 miles of trail. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 1,023 acres in alternative D. When research natural areas fall within congressionally designated areas, such as designated wilderness areas or wilderness study areas, research natural Area activities must meet the applicable congressionally designated area statutory mandates (FSM 4063.32 and FSM 1920) and forest plan direction. Similarly, research natural area activities would meet forest plan components for recommended wilderness areas. The overlapping research natural area is compatible with designated wilderness and recommended wilderness areas.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	About 800 acres were previously included as a recommended wilderness area in the 1986 Custer Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, has mostly intact ecological integrity. Some small areas where grazing has occurred may be less so. The majority of this area is undeveloped. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Mount Rae Recommended Wilderness Area

The area description is based on the AB #26 wilderness inventory polygon which is 5,375 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 41. Mount Rae Recommended Wilderness Area

Analysis Criteria	Description
Acres	2,839 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with its southern boundary adjacent to the Absaroka-Beartooth Wilderness. The western boundary follows section lines to avoid private lands, the northern boundary largely follows private land boundaries and the eastern boundary buffers the Main Boulder Creek Road largely on section lines.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep. Existing vegetation composition is 65 percent Douglas fir, 20 percent lodgepole pine, and the remainder transitional forest.
Current uses and management	Virtually all of the area is within an inventoried roadless area. Most of the area, 2,500 acres, is within a grazing allotment with range infrastructure. About 0.69 miles of non-motorized trail near the north-eastern border are open to bicycles. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 2,839 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – About seventy percent of this area is moderate to high departure from historic vegetation conditions. A 22 acre weed infestation is mapped west of the eastern boundary. **Undeveloped** –There are three separate grazing allotments totaling 2,500 acres; one with a major portion of allotment and primary range in the recommended wilderness area along with one water development. A second has a portion of the allotment and primary range in the recommended wilderness area along with 0.6 mile fence, and the third has a portion of the allotment and primary range in the recommended wilderness area along with 0.8 mile fence There are no summer motorized recreational uses, however grazing permittees would be authorized motorized use for management and repair of grazing infrastructure. **Unconfined and/or primitive recreation** – this area offers opportunities especially near the existing AB wilderness boundary. **Solitude** – There are good opportunities for solitude close the south western boundary with the wilderness, as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas nearer the busy Main Boulder road corridor on the eastern side may reduce the solitude with sights and sounds of traffic and human presence. Areas closer to private inholdings would have less opportunity for solitude. **Other Features of Value** – None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Virtually all of the area is within an inventoried roadless area. There are mining claims present in the recommended wilderness area. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. There are no summer motorized recreational uses. Mechanized recreation uses would no longer be suitable on about 0.69 miles of trail in alternative D. Existing grazing infrastructure and motorized use associated with the grazing permittee would continue. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 2,839 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers good opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Mystic Recommended Wilderness Area

The Mystic Recommended Wilderness Area was included in the 1986 Custer National Forest Plan. The area description is based two wilderness inventory polygons. The AB #93 wilderness inventory polygon which is 132 acres total is included within the recommended wilderness area in alternatives A, B, C and D. In addition, 144 acres of the 24,886 acre AB wilderness inventory polygons #16 is also included in alternatives A, B, C. The recommended wilderness area proposed boundary is smaller for alternative D, using only the 136 acres in AB #93, because the remaining acreage included in alternatives A, B and C is included in the East Rosebud to Stillwater Recommended Wilderness Area in alternative D.

Table 42. Mystic Recommended Wilderness Area

Analysis Criteria	Description
Acres	247 acres (alternative A, B and C); 136 acres (Alternative D)
Description of the recommended boundary - alternatives A, B and C	In alternatives A, B and C, the recommended wilderness area consists of the area located around the perimeter of the Mystic Lake inundation zone/FERC License #2301 boundary to the Absaroka-Beartooth Wilderness boundary on both the north and south sides of the lake. This area was included as a recommended wilderness area in the 1986 Custer Forest Plan.
Description of the recommended boundary – alternative D	In alternative D, the recommended wilderness area consists of the area located around the perimeter of the Mystic Lake inundation zone/FERC License #2301 boundary to the Absaroka-Beartooth Wilderness boundary on the north side of the lake. The south side of the lake is included in the East Rosebud to Stillwater Recommended Wilderness Area in alternative D.
Description of the geography, topography, and vegetation	The area consists of steep slopes adjacent to Mystic Lake. Current vegetation composition is 60 percent lodgepole pine, 15 percent Douglas fir, with the remaining split between whitebark pine and dry grass.
Current uses and management	Approximately 84 percent of the area is within inventoried roadless area. The 1986 Custer National Forest Plan included this area as a recommended wilderness area. The Mystic Lake Hydroelectric plant is immediately adjacent to the recommended wilderness area on the northeast shore of the lake, at the end of the West Rosebud road with infrastructure placed at the lake itself and throughout the drainage. There are two and a half total miles of hiker/horse trails in alternatives A, B and C and no motorized uses within the recommended wilderness area. There are no trails in alternative D. There are no winter motorized recreation uses.
Description of the wilderness characteristics	**Natural Quality** – The majority within this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** – The area is adjacent to the AB Wilderness. However, there is also FERC infrastructure including outbuildings, a caretaker's cabin, dam, and railway immediately adjacent on the northeast shore of the lake. **Unconfined and/or primitive recreation** – This area is small, but adjacent to the designated wilderness and offers nonmotorized recreation opportunities. **Solitude** – As this is a small area with adjacent infrastructure, this opportunity is diminishes in areas closer to the road, dam and facilities. However, as most of the remaining area is surrounding wilderness, opportunities increase with distance from the dam. **Other Features of Value** – The area has outstanding scenic quality with the surrounding lake and wilderness.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area could improve manageability of the adjacent wilderness by continuous designated wilderness. There are no motorized recreation uses.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	This area was previously included as a recommended wilderness area in the 1986 Custer Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces, has mostly intact ecological integrity. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The opportunities for solitude are present as part of the wider setting. There are opportunities for primitive and/or unconfined recreation.

North Fork Recommended Wilderness Area

The area description is based on the AB #78 wilderness inventory polygon which is 36 acres total. This polygon is entirely included as a recommended wilderness area in alternative D.

Table 43. North Fork Recommended Wilderness Area

Analysis Criteria	Description
Acres	36 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is comprised of one very small parcel, bordered on three sides by the Absaroka-Beartooth Wilderness, and by the forest boundary on the forth side.
Description of the geography, topography, and vegetation	Much of the area is moderately steep. Existing vegetation is predominately Douglas-fir forest.
Current uses and management	None of the area is within inventoried roadless area. There are no trails and no winter motorized recreation uses.
Description of the wilderness characteristics	**Natural Quality** – Although records do not show previous harvest or grazing or suppressed natural ignition fires, 90 percent of the area is moderate to high departure from historic vegetation conditions. **Undeveloped** – The majority of this area is undeveloped and not currently affected by human intervention. There are no motorized uses. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive off-trail recreation opportunities. **Solitude** – One boundary line is adjacent to private land at the forest boundary; therefore the area may be affected by activities within the sights and sounds of human activities and improvements. The adjacent private is used for recreational, agricultural and residential purposes. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	None of the area is within inventoried roadless area. There are no Forest Service system trails or motorized uses. The opportunities for solitude and primitive recreation are commensurate with its size; although user created trails from the adjacent private property are found within the area. The unique feature of this recommended wilderness area is its small size, and adjacent wilderness on three sides. It could improve manageability of the adjacent wilderness by continuous designated wilderness, although challenged by its proximity to private property.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area shows no records of weeds, structures or other unnatural features. The undeveloped quality of the area is affected by non-system user created trails leading from private lands, however there are no recorded motorized uses. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Phelps Creek Recommended Wilderness Area

The area description is based on the AB #7 wilderness inventory polygon which is 7,259 acres total. Portions of this polygon are included in part of a recommended wilderness area in alternative D.

Table 44. Phelps Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	3,177 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the northern boundary adjacent to the Absaroka-Beartooth Wilderness. The western boundary borders private land and the eastern and southern buffer roads.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep, with current vegetation composition at thirty percent dry grass, twenty percent Douglas fir, twenty percent shrub land, ten percent lodgepole pine, and five percent whitebark pine.
Current uses and management	This area is almost entirely within an inventoried roadless area. There are 0.94 total trail miles with 0.70 miles of mechanized trail and another 0.23 mile of trail open to hiker/horse use only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 317 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The area is largely without past harvest units. The naturalness of the area is affected primarily by natural forces, has mostly intact ecological integrity. **Undeveloped** – The majority of this area is undeveloped and without fences or water developments. **Unconfined and/or primitive recreation** – This area has a high level of opportunity for unconfined and primitive recreation opportunities; with a short segment of trail, other activities would require cross-country access. **Solitude** – Adjacent lands contain private land mining activities, the town of Gardiner, Highway 89, the Yellowstone River, state fishing/ boat access points, roads, trails and trailheads. There are power lines and cell towers, and repeaters nearby, as well as an administrative gravel pit. To the southeast is the Travertine Mine. **Other Features of Value** – this area has a long history of tribal uses along with early settlement around Gardiner and Yellowstone National Park.
The ability to protect and manage the area so as to preserve its wilderness characteristics	This area is almost entirely with an inventoried roadless area. There are no summer motorized uses. Mechanized recreation uses would no longer be suitable on 0.7 miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 317 acres in alternative D. Areas adjacent to the boundaries are developed, with powerlines, cell towers, repeaters, and Highway 89.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for inventoried roadless areas adjacent to the Absaroka-Beartooth Wilderness.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is affected primarily by natural forces, has mostly intact ecological integrity. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Red Lodge Creek Recommended Wilderness Area

The area description is based on the AB #11 wilderness inventory polygon which is 34,613 acres total. A portion of this polygon is included as the Red Lodge Creek Recommended Wilderness Area in alternative D. Other portions of this polygon are included in the Red Lodge Creek Recommended Wilderness Area in alternative D, and the Red Lodge Creek/Hellroaring Recommended Wilderness Area in alternatives A, B, and C. A portion of the Red Lodge Creek Recommended Wilderness Area is included in the Burnt Mountain Recommended Wilderness Area in alternative A.

Table 45. Red Lodge Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	12,039 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land that follows the Absaroka-Beartooth Wilderness boundary to the west. The southern boundary buffers the West Fork of Rock Creek road. The northern and eastern boundaries follow the forest boundary and private land boundaries except where buffered from roads in places.
Description of the geography, topography, and vegetation	Much of the area is very steep, generally natural appearing; consisting of steep timber covered slopes adjacent to the wilderness that connect to the higher elevations and sub alpine tundra plateaus. Vegetation is lodgepole, some transitional forest, Douglas-fir and whitebark pine.
Current uses and management	The area is sixty-six percent within an inventoried roadless area. All of the 3,917 acres of the Burnt Mountain Recommended Wilderness Area from the 1986 Custer Forest Plan are included within the larger boundaries of this recommended wilderness area. There are 2,914 acres in two grazing allotments. Motorized use would be allowed to administer the grazing permits. There are 2.39 total trail miles, with no summer motorized trails. The area has 1.95 miles of non-motorized trail are open to mechanized recreation uses, and a small segment of 0.44 miles open only to hiker/horse use. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 390 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Much of this area is natural appearing, although there are previous harvest units close to the recommended wilderness area boundary. Away from the grazing allotments, the current vegetation is primarily affected by natural ecological processes. There have been six natural fires suppressed since 1985, the largest reaching 5,000 acres. **Undeveloped** –There is a portion of grazing allotment and primary range along with 0.8 mile of fence in the recommended wilderness area. The majority of this area away from grazing is undeveloped and not affected by human intervention. There are no summer motorized recreational uses. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, hunting, and cross country skiing. **Solitude** – Part of this area, especially near the wilderness boundary, should offer opportunities for solitude. **Other Features of Value** –None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	About two-thirds of the area is within an inventoried roadless area. There are 671 acres of reserved mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. Administrative motorized uses would continue for the two grazing permits. Mechanized recreation uses would no longer be suitable on 1.95 miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized recreation use on 390 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	About 3,900 acres within this area were previously included as a recommended wilderness area in the 1986 Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is good as it is still offers some areas affected primarily by natural forces, and has mostly intact ecological integrity. While some grazing infrastructure is noted, the majority of this area is undeveloped and not affected by human intervention. The social characteristics that provide the basis for suitability include: The recommended wilderness area offers areas with opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Red Lodge Creek/Hellroaring Recommended Wilderness Area

The Red Lodge Creek/Hellroaring Recommended Wilderness Area was included in the 1986 Custer National Forest Plan. The area description is based on the AB #11 wilderness inventory polygon which is 34,613 acres total. A portion of this polygon is included as a recommended wilderness area in alternatives A, B, and C and the boundary is the same for all three alternatives. Other portions of AB #11 were included in the Red Lodge Creek Recommended Wilderness Area and the West Fork Rock Creek Recommended Wilderness Area in alternative D.

Table 46. Red Lodge Creek/Hellroaring Recommended Wilderness Area

Analysis Criteria	Description
Acres	802 acres (alternatives A, B and C)
Description of the recommended boundary - alternative A, B, C	The recommended wilderness area is contiguous land that follows the same recommended wilderness area boundary as the 1986 Custer Forest Plan. The boundary follows Timberline Creek and trails paralleling the creek up to the current designated boundary for the Absaroka-Beartooth Wilderness. The area currently is largely surrounded by wilderness.
Description of the geography, topography, and vegetation	This area moderately steep as trails follow Timberline Creek into the adjacent wilderness. Existing vegetation includes lodgepole, some transitional forest, and Douglas-fir.
Current uses and management	The entire area is within inventoried roadless area. The 1986 Custer National Forest Plan included this area as a recommended wilderness area. In alternatives A, B and C there are a total of 3.64 miles of hiker/horse trails, but no motorized or mechanized trails, or motorized over snow uses.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** –There are no grazing allotments or infrastructure. The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities for horseback and hiking trail access. **Solitude** – Although this is a small area, once the trailheads are left behind, there should be opportunities for solitude as the designated wilderness surrounds this area on three sides. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area has been managed as a recommended wilderness area since 1986. It could improve manageability of the adjacent wilderness by continuous designated wilderness. The entire area is within inventoried roadless area. There are no mechanized recreation uses or summer or winter motorized uses.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	This area was previously included as a recommended wilderness area in the 1986 Forest Plan. There were public comments received in favor of recommended wilderness area designation for wilderness inventory polygon AB #11, which includes this area.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, has mostly intact ecological integrity. The undeveloped quality of the area is very high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Republic Mountain Recommended Wilderness Area

The Republic Mountain Recommended Wilderness Area was included in the 1987 Gallatin Forest Plan. The area description is based on the AB #80 wilderness inventory polygon which is 388 acres total. This polygon is included as a recommended wilderness area in alternatives A, B, C and D. The boundary is the same for alternatives A, B, C and D.

Table 47. Republic Mountain Recommended Wilderness Area

Analysis Criteria	Description
Acres	388 acres (alternatives A, B,C and D);
Description of the recommended boundary – alternatives A B, C, D	The recommended wilderness area is contiguous land, bounded to the south by the North Absaroka-Wilderness on the Shoshone National Forest in Wyoming. The other boundaries follow topographic features, with a short segment adjacent to private lands.
Description of the geography, topography, and vegetation	The area is very steep, rugged, cliffy, relatively inaccessible terrain, and natural in appearance. Half the area is sparse vegetation, a third whitebark pine, and ten percent subalpine fir.
Current uses and management	The area is entirely within an inventoried roadless area. The 1987 Gallatin National Forest Plan includes this area as a recommended wilderness area. There is no access by Forest Service system trails and no motorized uses therefore providing a primitive off-trail experience.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities especially noted for backcountry skiing “The Fin” on the side of Republic Peak. **Solitude** – There is opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. **Other Features of Value** – There are many features in this polygon including proximity to the North Absaroka Wilderness, steep, rugged, high altitude terrain with whitebark pine and other high elevation species.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area has been managed as a recommended wilderness area since 1987 and is entirely within an inventoried roadless area. The area would be manageable as wilderness due to its proximity to the North Absaroka Wilderness, steep, high elevation terrain. It has a buffer from other developments other than one small area of private land, and is generally inaccessible with no system trails or other developments.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	This area was previously included as a recommended wilderness area in the 1987 Gallatin Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, and has mostly intact ecological integrity. The undeveloped quality of the area is very high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There is high level of opportunity for primitive and/or unconfined recreation for rugged cross-country travel and expert level backcountry skiing.

Sheep Creek Recommended Wilderness Area

The area description is based on the AB #77 wilderness inventory polygon which is 1,109 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 48. Sheep Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	557 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the southern boundary adjacent to the Absaroka-Beartooth Wilderness, then mostly follows topographic features and avoids private lands.
Description of the geography, topography, and vegetation	Much of the area is moderately steep. Existing vegetation is split between Douglas-fir forest, and transitional forest. Although there are prior harvest units included, those areas and more burned over in 2006.
Current uses and management	The area is almost entirely within inventoried roadless area and all acres are covered by two grazing allotments. There are no trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 557 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area has burned in the past twelve years which has assisted in restoring some natural appearances where there were multiple previous harvest units. There is active grazing. The vegetative condition is 85 percent moderate to high departed from historic vegetative conditions. **Undeveloped** – There is no infrastructure listed for the two grazing allotments. **Unconfined and/or primitive recreation** – This area would offer unconfined and primitive recreation opportunities especially along the wilderness boundary. Some other boundaries are shared with private lands. **Solitude** – There are opportunities for solitude and opportunities for primitive recreation throughout the area. **Other Features of Value** –None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area is almost entirely within inventoried roadless area. Motorized cross country use would continue by grazing permittees. Adjacent private property is primality used for recreation and agriculture. There are no mechanized or summer motorized recreational uses. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 557 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has been assisted through the recent natural fire event. The area is not developed, as no infrastructure is noted, but the entire area is grazed. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Strawberry Creek Recommended Wilderness Area

The area description is based on the AB #23 wilderness inventory polygon which is 13,037 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 49. Strawberry Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	11,597 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land that shares a long eastern boundary with the Absaroka-Beartooth Wilderness. The northern and western boundaries follow the forest boundary and private property lines. The southern boundary buffers adjacent roads and private property lines.
Description of the geography, topography, and vegetation	The terrain is steep and relatively inaccessible other than by foot. Existing vegetation includes Douglas-fir forest, lodgepole, and a small amount of whitebark pine.
Current uses and management	Almost the entire area is within inventoried roadless area. There are 114 acres of a grazing allotment. Immediately adjacent to the northern boundary are Forest Service summer homes and access points to the wilderness and Mt. Cowan (a climbing destination), and Pine Creek Falls and Lake, among the busiest areas on the district. Adjacent private lands are primarily used for recreation, residences and agricultural use. This recommended wilderness area has a total of 3.61 miles of trail, with 2.88 miles open to mechanized use in the northern part of the recommended wilderness area. There are no summer motorized trails, but a small 0.73 miles open to hiker/horse only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 11,597 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Forty percent of the vegetation is moderate to high levels of departure from historic conditions. A four hundred acre natural fire burned in 2012. Due to the long shared boundary with private lands, this area likely has had little natural fires allowed to burn, thus contributing to the change in natural vegetation. **Undeveloped** – There is a very small acreage of grazing allotment but no primary range in recommended wilderness area, which includes 0.1 mile of fence, and 0.2 mile of water pipeline. The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses. An abandoned mine is inventoried in the southern area. **Unconfined and/or primitive recreation** – This area has large areas with opportunities for unconfined and primitive recreation, with little trail access. **Solitude** – There are opportunities for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance, especially closer to the wilderness boundary. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Almost the entire area is within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There are no summer motorized uses. Mechanized recreation uses would no longer be suitable on 2.88 miles of trail in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 11,597 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is affected primarily by the lack of allowing natural fire, due to concern for adjacent private lands. The undeveloped quality of the area is high. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Tie Creek Recommended Wilderness Area

The area description is based on the AB #30 wilderness inventory polygon which is 7,969 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 50. Tie Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	5,886 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the southern boundary adjacent to the Absaroka-Beartooth Wilderness, and the northwestern boundary follow the forest boundary. Remaining boundaries buffer roads and private lands.
Description of the geography, topography, and vegetation	Much of the area is moderately steep and primarily composed of Douglas- fir, with some lodgepole pine.
Current uses and management	Almost the entire area is within inventoried roadless area. Approximately eighty-two percent of the recommended wilderness area 4,830 acres, are within three grazing allotments. There are 2.59 total miles of trail, all open to hiker/horse use only. . Areas mapped as a semi-primitive motorized winter ROS are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 5,790 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** –Sixty percent of the area has moderate to high departure from historic vegetation condition. The area is mostly within a grazing allotment. An area of heavy weed infestation is just outside of the northwest boundary. **Undeveloped** – There are three grazing allotments; one has a portion of the allotment and primary range along with 0.6 mile fence and one water development. The second has a portion of the allotment and primary range along with 0.5 mile fence and two water developments. The third has a portion of allotment and primary range in the recommended wilderness area. **Unconfined and/or primitive recreation** – This area has a potential for unconfined and primitive recreation opportunities with two nonmotorized trails totaling four miles that pass through the area. The remaining adjacent lands contain developed private properties, including infrastructure along the Livingston Peak road and the guest ranch along Mission Creek road. **Solitude** – While there are opportunities for solitude closer to the designated wilderness, there is less at the forest boundary. **Other Features of Value** – none noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Almost the entire area is within inventoried roadless area. The grazing allotments would be authorized for motorized use and there would be continued maintenance of fence lines and water features. The area has adjacent occupied private lands and is close to the town of Livingstone. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There are no mechanized or summer motorized recreational uses. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 5,790 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has been affected by grazing and infrastructure. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

West Fork Rock Creek Recommended Wilderness Area

The area description is based on the AB #11 wilderness inventory polygon which is 34,613 acres total. A portion of this polygon is included as the West Fork Rock Creek Recommended Wilderness Area in alternative D. Other portions of this polygon are included as the Burnt Mountain Recommended Wilderness Area in alternative A and the Red Lodge Creek Recommended Wilderness Area in alternative D. A portion of the West Fork Rock Creek Recommended Wilderness Area is included in the Red Lodge Creek/Hellroaring Recommended Wilderness Area in alternatives A, B, and C.

Table 51. West Fork Rock Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	12,470 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land that follows the Absaroka-Beartooth Wilderness boundary to the west, the forest boundary to the east, and buffers roads on all other sides; the northern boundary from the West Fork Rock Creek road and the southern boundary from Highway 12, the Beartooth Highway.
Description of the geography, topography, and vegetation	Much of the area is rugged and very steep, with Douglas fir and whitebark pine, along with transitional forest.
Current uses and management	The area is virtually all within inventoried roadless area. The 1986 Custer National Forest Plan included 802 acres of this area as a recommended wilderness area. There are 1,221 acres in a grazing allotment. There are a total of 13.94 total trail miles, with 9.99 miles of non-motorized trails are open to mechanized recreation use, the remaining 3.95 open to hiker/horse use only. There is no motorized use.
Description of the wilderness characteristics	**Natural Quality** – Aside from the area within grazing allotment, the majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** –There is a portion of one allotment and primary range in the recommended wilderness area, with no infrastructure noted. The majority of this area is undeveloped and not affected by human intervention. There are no recreational motorized uses year-round. **Unconfined and/or primitive recreation** – This area has offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, and hunting. **Solitude** – Much of the interior area provides for high levels of solitude because of the limited number of trails and its overall steep and remote location. Lands to the east contain state of Montana managed properties. Private land uses adjacent to this recommended wilderness area include residential areas, agricultural uses, recreation purposes and a variety of other types of management scenarios. Adjacent national forest lands contain high density developed recreation opportunities. **Other Features of Value –** This area has trails that are important to the local community as they are close to Red Lodge, for hiking, biking, stock use and skiing. The Beartooth Highway, adjacent to this area is an international destination.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area is virtually all within inventoried roadless area There are no motorized recreational uses, however the grazing permittee may be allowed motorized use for administration of their permit. Mechanized recreation uses on 9.99 miles of trail would no longer be suitable in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces, with mostly intact ecological integrity. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There is high amount of primitive and/or unconfined recreation opportunity for horseback riding, hiking, backpacking, dispersed camping, and hunting and backcountry skiing.

West Woodbine Recommended Wilderness Area

The area description is based on the AB #73 wilderness inventory polygon which is 2,725 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 52. West Woodbine Recommended Wilderness Area

Analysis Criteria	Description
Acres	1,091 acres (Alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land bounded on the south and west by the Absaroka-Beartooth Wilderness boundary. The remainder of the boundaries buffer private lands to the north and roads to the east.
Description of the geography, topography, and vegetation	Much of the area is moderately steep and natural appearing, consisting of timber covered slopes located south of the Stillwater mine complex. Current vegetation composition is 45 percent lodgepole pine, 35 percent Douglas fir, and five percent whitebark pine, with the remaining land dry grass and sparse vegetation.
Current uses and management	Ninety-four percent of the area is within inventoried roadless area. The only trail is a small 0.35 mile segment of a hiker/horse trail which crosses the far western area before entering the wilderness. There are no summer motorized or mechanized trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 1,091 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The area is 55 percent moderate to high departure from historic vegetation conditions. However, the remainder of this area is very natural appearing and the current vegetation is affected by natural ecological processes. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no mechanized or summer motorized recreational uses. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities for primarily cross-country travel. **Solitude** – This area is just south of Stillwater mining complex permit boundary which is an area with active minerals activity and includes a variety of mining infrastructure. Areas closest to that operation would be impacted by the mining activities, while areas closer to the wilderness boundary should offer more opportunities for solitude. **Other Features of Value** –None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Ninety-four percent of the area is within inventoried roadless area. There are mining claims present in the recommended wilderness area. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. There are no mechanized or summer motorized uses. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 1,091 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for inventoried roadless areas adjacent to the Absaroka-Beartooth Wilderness.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is affected primarily by natural forces, and has mostly intact ecological integrity. The area is largely undeveloped. The social characteristics that provide the basis for suitability include: There are unconfined recreation opportunities. The adjacent mining activities would impact a feeling of solitude.

Blacktail Peak Recommended Wilderness Area

The area description is based on the Bridgers #35 wilderness inventory polygon which is 12,453 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 53. Blacktail Peak Recommended Wilderness Area

Analysis Criteria	Description
Acres	6,147 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with western and northern boundaries following the forest boundary or private land boundaries. The southern boundary buffers roads, and the eastern boundary buffers Horsethief Mountain Trail 523.
Description of the geography, topography, and vegetation	Much of the area is characterized by lower-elevation foothills ranging up toward low mountains. Existing vegetation includes mostly Douglas-fir, along with small amounts of dry grasses.
Current uses and management	Almost the entire recommended wilderness area is within inventoried roadless area. The entire recommended wilderness area is within a grazing allotment. Motorized cross country use would be authorized to the grazing permittee to manage the allotment. The area contains elk habitat and hunting constitutes the primary recreational opportunity. There are no trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, all 6,147 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Although entirely within a grazing allotment, vegetation condition class shows only a small percent is heavily modified from historic conditions. Current vegetation over the majority of this area is primarily affected by grazing. **Undeveloped** – There is one grazing permittee with most of the allotment and primary range in the recommended wilderness area along with 0.6 miles of fence and one water development. **Unconfined and/or primitive recreation** – This area has opportunities for unconfined and primitive recreation opportunities. **Solitude** – There are opportunities for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas closer to northern portion bordered by multiple private sections on the edge of the recommended wilderness area may lack those opportunities. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Nearly the entire recommended wilderness area is within inventoried roadless area. There are 6,147 acres of oil and gas leases, which is virtually the entire recommended wilderness area. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 6,147 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.

Analysis Criteria	Description
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is relatively high. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Crazy Mountains Recommended Wilderness Area

The area description is based on parts of two wilderness inventory polygons; Crazies 36 (35,644 acres total; 29,726 acres included) and Crazies 37 (48,141 acres total; 29,910 acres included). Portions of these polygons are included as a recommended wilderness area in alternative D.

Table 54. Crazy Mountains Recommended Wilderness Area

Analysis Criteria	Description
Acres	59,636 acres (alternative D);
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land. The highly checker boarded ownership pattern of the area has a northern boundary which follows the section line boundaries, then the watershed divide, then the Custer Gallatin National Forest and Helena Lewis and Clark National Forest boundary, then a road buffer for American Fork 7154. The eastern boundary follows Forest Service ownership plus road buffers for Sweet Grass Creek 990 and Big Timber Creek 197. This boundary does not include sections of National Forest System Lands isolated by private sections. The southern boundary follows Forest Service ownership plus road buffers for Swamp Lake Road 7080, North Rock Creek Road 199, and buffers on private roads in sections 31 and 33. Finally the western boundary follows Forest Service ownership and/or Forest Service administrative boundary plus buffers for Cottonwood Creek Road 198, Ibex Road 2510, unnamed logging roads in Section 2, and buffers on private roads in Section 15.
Description of the geography, topography, and vegetation	Much of the area is very steep and rugged. Current vegetation composition is 40 percent sparse vegetation, 25 percent Douglas fir, 15 percent ponderosa pine, and 10 percent subalpine fir.
Current uses and management	Virtually the entire area is within an inventoried roadless area. Sixteen grazing allotments cover 37,970 acres (approximately 64 percent) of the recommended wilderness area. There are a total of 33.14 miles of trail, with about 13.37 miles of nonmotorized trails open to mechanized recreation use. There are 4.5 miles of motorcycle trails and another 15.28 miles open to hiker/horse use only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 8,701 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** –Much of the area outside of grazing allotments is natural appearing and much of that current vegetation is primarily affected by natural ecological processes. **Undeveloped** – Thirteen of the grazing allotments have a portion of the allotment and primary range in the recommended wilderness area; five of these have a total of 3.2 miles of fence line. Of the remaining three allotments, one has a major portion of the allotment and primary range, 0.5 mile of fence and one water development in the recommended wilderness area; another has the entire allotment and primary range and 0.3 mile of fence in the recommended wilderness area; and the last has a major portion of the allotment and primary range and 0.2 mile of fence range in the recommended wilderness area. Therefore there are about 9 miles of various fence lines scattered across the recommended wilderness area. In the portions of the recommended wilderness area not under grazing allotments, areas are undeveloped and not affected by human intervention. There are no summer motorized recreational uses. **Unconfined and/or primitive recreation** – Some portions of the recommended wilderness area provide quick access into the high country and scenic mountain lakes, creating numerous opportunities for backcountry recreation. Interspersed private landownership disrupts opportunities for unconfined recreation. **Solitude** – There is opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. **Other Features of Value** – This area of the Crazy Mountains is beautifully rugged and stunning. It is a meaningful area for the Crow Tribe and contains many sacred sites. There are ample elk hunting opportunities, and the southern portion has mountain goats.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Virtually the entire area is within an inventoried roadless area. Interspersed private land ownership would be problematic to managing for wilderness characteristics and disrupts opportunities for unconfined recreation. While recommended wilderness area is largely natural and undeveloped, the private sections within the boundary hold possibilities of future private development and make management difficult as a recommended wilderness area. Managing for wilderness character would be difficult where there is interspersed private land every other mile. There are 9,974 acres of outstanding and 634 acres reserved mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Mechanized recreation uses would no longer be suitable on about 13.37 miles of trail and also 4.5 miles of motorized use on motorcycle trails in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 8,701 acres in alternative D.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, it has mostly intact ecological integrity and contains many indigenous species. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There is high amount of primitive and/or unconfined recreation for hiking and horseback as well as hunting.

West Bridger Recommended Wilderness Area

The area description is based on the Bridgers #34 wilderness inventory polygon which is 41,500 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 55. West Bridger Recommended Wilderness Area

Analysis Criteria	Description
Acres	26,106 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land with the western boundary the forest boundary or private land boundaries, except where buffered for the Corbly Gulch 6912, Truman Gulch 1178, and Middle Cottonwood 1177 roads. The northern boundary buffers roads, the eastern boundary follows the Bridger ridgeline, and the southern boundary is watershed divide between Sypes and Lyman Creeks.
Description of the geography, topography, and vegetation	This recommended wilderness area includes much of the west side of Bridger Range, with elevations from 5,000 ft. to over 9,000 ft. Current vegetation composition is 55 percent Douglas fir, 20 percent sparse vegetation/dry grass, 15 percent lodgepole pine, the remainder subalpine fir and various vegetation groups.
Current uses and management	Ninety-five percent of the area is within inventoried roadless area. About forty-five percent, or 11,804 acres, are in grazing allotments. Of the eight grazing allotments, five consist of forty acres or fewer. There are a total of 48.85 miles of trail in this recommended wilderness area. This includes about 0.61 miles open to all-terrain vehicles and bicycles, 22.62 miles open to bicycles, and 25.62 open to motorcycles and bicycles. There are no non-motorized/mechanized trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 23,988 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Almost half of this area is within grazing allotments, however most of the vegetation is classified as moderate or below in its departure from historic vegetation conditions. Little area has burned, (non-prescribed) since 1991, which shows a limited amount of natural fire allowed. There is just over a mile total of grazing fence line and an abandoned mine in the recommended wilderness area. **Undeveloped** – Three separate grazing allotments, one with a major portion of the allotment and minor primary range with 0.2 mile of fence and one water developments. Another with a portion of the allotment and minor primary range with 0.2 mile of fence. And the third has a portion of the allotment and minor primary range with 0.9 mile of fence. **Unconfined and/or primitive recreation** – This area has a large amount of recreation opportunities, although the current use includes motorized and mechanized trail use, which would no longer be suitable under alternative D. **Solitude** –The overall popularity of the area for numerous types of year-round motorized and non-motorized recreation limits the opportunities for solitude**.** Solitude is further compromised by the adjacency to the development of the Gallatin Valley and Bridger Bowl Ski Area. **Other Features of Value** –None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Ninety-five percent of the area is within inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There are 81 acres of outstanding mineral rights and 15,862 acres of oil and gas leases. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. There are 48.85 miles combined of summer motorized and mechanized trail use which would no longer be suitable under alternative D, affecting all trails in the recommended wilderness area. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities within recommended wilderness area for winter motorized use on 23,988 acres. What makes this area unique - close accessibility to Bozeman and prime recreational opportunities - would also make it challenging to manage as recommended wilderness area.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is relatively high considering much of the area has included grazing. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: Solitude is compromised by heavy use. There are opportunities for primitive and/or unconfined recreation.

Buck Creek Recommended Wilderness Area

The area description is based on the Madisons #13 wilderness inventory polygon which is 42,646 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 56. Buck Creek Recommended Wilderness Area

Analysis Criteria	Description
Acres	28,966 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land that follows the Lee Metcalf Wilderness border (Taylor Hilgard unit on the Beaverhead-Deerlodge National Forest) to the west, private property boundaries and road buffers to the east and north, then the Gallatin River Canyon to the east, and the boundary buffers roads to the south.
Description of the geography, topography, and vegetation	This area varies in topography with small valleys and then steep slopes across multiple ridgelines. Current vegetation composition is twenty percent Engelmann spruce, fifteen percent Douglas-fir, and the remainder shrub land, dry grass, whitebark pine, subalpine fir, and lodgepole pine.
Current uses and management	Ninety-six percent of the area is within inventoried roadless area. Two grazing allotments total 1,966 acres. The area has a total of 45.54 miles of trails open to a variety of uses. There are 9.14 miles of all-terrain vehicle routes (also open to mechanized use); 10.58 miles of motorcycle trails (also open to mechanized use); and 22.13 miles of nonmotorized routes open to mechanized use. There are 3.69 miles open to hiker/horse only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 11,547 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is natural appearing. Most of the area is low to moderate departure from historic vegetation condition. Some area of weeds and non-native plants have been inventoried. Along some boundaries, much of the adjacent areas have received prior vegetation treatments. **Undeveloped** – There are two grazing allotment in the recommended wilderness area. One has a major portion of the allotment and primary range in the recommended wilderness area, 2.5 miles fence and one water development. The second has a portion of the allotment and primary range in the recommended wilderness area and 0.5 miles fence. These are minor disruptions across a much larger acreage, however the use of motorized access to grazing areas may be authorized by permit. Over 40 miles of either motorized or mechanized recreational trails would no longer be suitable for these uses in alternative D. **Unconfined and/or primitive recreation** –The area is crossed by multiple trails, including multiple mechanized and motorized trails, providing trail access to most of the recommended wilderness area. **Solitude** – The eastern border is formed by Gallatin Canyon, a very popular recreation corridor. The number and density of trails may reduce opportunities for solitude. **Other Features of Value** – None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Approximately ninety-six percent of the area is within inventoried roadless area. There are 3,372 acres of outstanding mineral rights and 360 acres of oil and gas leases. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Under alternative D a total of 41.85 miles of motorized and mechanized trail uses would no longer be suitable in this recommended wilderness area. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 11,547 acres.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high, as much of the area is affected primarily by natural forces. The undeveloped quality of the area is high. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area offers limited opportunity for solitude due to the density of the trail system, and proximity to Big Sky and the busy Gallatin River corridor. There are opportunities for primitive and/or unconfined recreation.

Cabin Creek North Recommended Wilderness Area

The area description is based on the Madisons #12 wilderness inventory polygon which is 111,565 acres total. A portion of this polygon is included as the Cabin Creek North Recommended Wilderness Area in alternative D. Other portions of this polygon are included as the Cabin Creek South Recommended Wilderness Area in alternative D, and the Taylor Hilgard Recommended Wilderness Area in alternatives B, C and D.

Table 57. Cabin Creek North Recommended Wilderness Area

Analysis Criteria	Description
Acres	17,092 (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is comprised of two separate parts. The western piece at 4,457 acres shares a western and southern boundary with the Lee Metcalf Wilderness Taylor Hilgard unit, and also borders in part the Cabin Creek Recreation and Wildlife Management Area to the south. The eastern and northern boundaries follow section lines to buffer roads and exclude inholdings of private ownership. The eastern piece at 12,635 acres shares a southern boundary with the Cabin Creek Recreation and Wildlife Management Area and the Lee Metcalf Monument Mountain unit, then buffers Highway 191 to the east excluding private ownership. The northern boundary buffers roads and the western boundary follows section lines.
Description of the geography, topography, and vegetation	The western piece includes steep slopes off the side of Woodward Mountain then enters the river valley along Lightning Creek with open forest and many meadows. The eastern piece varies in elevation with open meadows and Snowflake Ridge running north to south. Current vegetation composition is subalpine fir, Engelmann spruce, Douglas fir, dry grass, and transitional forest.
Current uses and management	The recommended wilderness area is virtually entirely within inventoried roadless area. One grazing allotment totals 4,430 acres. There are a total of 21.48 miles of trail, with 3.54 miles of all-terrain vehicle trail are also open to mechanized use and 6.89 miles of nonmotorized trail are also open to mechanized use. In addition there are 11.05 miles of hiker/horse use only trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 7,972 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access, or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is classified as moderate to low departure from historic vegetation conditions. **Undeveloped** –A grazing allotment has a portion of the allotment and primary range and 4.7 miles of fence in the recommended wilderness area. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, hunting. It also offers motorized and mechanized uses which would no longer be suitable uses in alternative D. **Solitude** – This area has a fair density of trails and is adjacent to private ranches which may hinder opportunities for solitude. Much of the trail system is used by local Outfitter Guides. **Other Features of Value** – The northern portion borders the Taylor Fork, a popular recreation corridor that has rental cabins and guest ranches.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Nearly the entire recommended wilderness area is within an inventoried roadless area. There are 1,912 acres of outstanding mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. The acres within grazing allotment may have authorized motorized use for the administration of the allotment, and infrastructure consisting of almost five miles of fencing, would be maintained. Boundaries shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. There would be a total of 10.43 miles of motorized or mechanized use on trails which would no longer be suitable in the recommended wilderness area. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities within recommended wilderness area for winter motorized use on 7,972 acres within these boundaries.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces, has mostly intact ecological integrity, aside from areas within grazing allotments. The undeveloped quality of the area is high, however there is range fencing infrastructure noted. The social characteristics that provide the basis for suitability include: The area offers some areas with opportunity for solitude, primarily off-trail. There is high amount of primitive and/or unconfined recreation for horseback riding, hiking, backpacking, dispersed camping, hunting. Near the wilderness, much of this area feels remote and has little adjacent development due to designated wilderness.

Cabin Creek South Recommended Wilderness Area

The area description is based on the Madisons #12 wilderness inventory polygon which is 111,565 acres total. A portion of this polygon is included as the Cabin Creek South Recommended Wilderness Area in alternative D. Other portions of this polygon are included as the Cabin Creek North Recommended Wilderness Area in alternative D, and the Taylor Hilgard Recommended Wilderness Area in alternatives B, C and D.

Table 58. Cabin Creek South Recommended Wilderness Area

Analysis Criteria	Description
Acres	19,272 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is comprised of two separate parts, bisected by the Cabin Creek Recreation and Wildlife Management Area. The western piece is 14,765 acres and follows a northern and eastern boundary with the Cabin Creek Recreation and Wildlife Management Area and all other boundaries are buffered from surrounding roads or recreation developments. The smaller 4,507 acre eastern parcel shares its northwestern boundary with the Cabin Creek Recreation and Wildlife Management Area, the northern boundary with the Monument Mountain unit of the Lee Metcalf Wilderness, and the eastern boundary with Yellowstone National Park. The southern boundary buffers a road spur following Little Teepee Creek and southwestern follows section lines.
Description of the geography, topography, and vegetation	The larger western piece is predominately steep terrain, including parts of Boat Mountain and Mount Hebgen and Hebgen Ridge to the south, along with several creek drainages. The eastern piece has East Teepee Creek flowing through the center and contains meadows and rock outcrops. Current vegetation composition is subalpine fir, Engelmann spruce, Douglas fir, dry grass, and transitional forest.
Current uses and management	This recommended wilderness area is ninety-three percent inventoried roadless area. Some motorized and mechanized trails occur in the larger western portion, and no trails are located in the eastern portion. There are a total of 13.89 miles of trail, with 0.76 miles of all-terrain vehicle trail which are also open to mechanized uses, 9.64 miles of nonmotorized trails which are open to mechanized uses. There are also 3.49 miles of motorcycle trails. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 17,794 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Most of this area is classified as moderate to low departure from historic vegetation conditions. This area contains open forest and many meadows, making for a scenic, natural landscape. **Undeveloped** – Although 1,700 acres were historically grazed, that allotment is now closed with no remaining infrastructure noted. The majority of this area is undeveloped and not affected by human intervention. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities, but also includes motorized and mechanized uses which would no longer be suitable uses in alternative D. It provides high quality elk hunting and is used by several outfitter/guides. **Solitude** – The southern part of the large western polygon is subject to sights and sounds from Hebgen Lake, however much of the rest of both polygons would offer opportunities for solitude, especially the untrailed eastern polygon. **Other Features of Value** – None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Approximately ninety-three percent is within inventoried roadless area. There are 0.76 miles of all-terrain vehicle trail also currently open to mechanized uses, and 9.64 miles of nonmotorized trails open to mechanized use and 3.49 miles of motorcycle trails also open to mechanized use, which would no longer be suitable uses in alternative D as recommended wilderness area. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities within recommended wilderness area for winter motorized use on 17,794 acres within these boundaries.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The area offers many places with opportunities for solitude. There is high amount of primitive and/or unconfined recreation in the untrailed eastern polygon.

Cowboy Heaven Recommended Wilderness Area

The area description is based on the Madisons #25 wilderness inventory polygon which is 17,588 acres total and Madisons #75 wilderness inventory polygon which is 11 acres. Portions of this polygon are included as a recommended wilderness area in alternatives C and D.

Table 59. Cowboy Heaven Recommended Wilderness Area

Analysis Criteria	Description
Acres	15,536 acres (alternative C); 14,357 acres (alternative D)
Description of the recommended boundary - alternative C	In alternative C, the recommended wilderness area is comprised of two nearly adjacent separate parts. The boundary follows the Lee Metcalf Spanish Creek unit boundary to the south, the forest boundary to the west and north (adjacent to the Lee Metcalf Wilderness Bear Trap Canyon Unit) and sections lines to the east. A narrow cherry–stem around the administrative road cuts deeply in to the area. In addition, the recommended wilderness area includes the 11 acres of the Madisons #75 wilderness inventory polygon which was left as a wedge between the Lee Metcalf Wilderness Boundary and the Custer Gallatin National Forest boundary when the wilderness boundary was legally described.
Description of the recommended boundary – alternative D	In alternative D, the recommended wilderness area is comprised of three separate parts. The boundary is similar to alternative C, except a much wider ¼ mile each side buffer of the administrative road results in a northern and southern section of the recommended wilderness area. In addition, the recommended wilderness area includes the 11 acres of the Madisons #75 wilderness inventory polygon.
Description of the geography, topography, and vegetation	The Madisons #25 portion has a foothills feel with rolling timber, many meadows, and perennial streams. Vegetation is equally mixed with lodgepole and Douglas-fir, and lesser amounts of Engelmann spruce The Madison #75 portion is comprised of whitebark pine and grass.
Current uses and management	In both alternatives, virtually the entire area is within inventoried roadless area. In alternative C, 6,130 acres are within grazing allotments; in alternative D 4,390 acres are within grazing allotments. Alternative C has a total of 15.86 miles of trail; alternative D has 16.82 total miles. The Madisons #25 piece has about 3.57 miles of trail currently open to mechanized use in alternative C, and about 4.97 miles in alternative D. Alternative C have 12.29 miles and alternative D has 11.85 miles of hiker/horse use only trails. There are no current winter motorized recreation use.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** – The area is naturally appearing, with exceptions in areas of non-native grass. Although outside the recommended wilderness area boundary, there is an influence from the administrative road and cabin which are near the boundary in alternative C and a further distance away in alternative D. **Undeveloped** – Several trails access the area. There are two abandoned mines noted in the inventory. Alternative C has a portion of an allotment and primary range within the recommended wilderness area, along with 3.5 miles of fence. Under alternative D there is a portion of the allotment and primary range within the recommended wilderness area, and 1.6 miles of fence. **Unconfined and/or primitive recreation** – The area within Madisons #25 receives heavy use during big game season. Apart from hunting season, recreational use is light. A cherry-stemmed administrative road and coincident public trail lead to an administrative cabin and nearly bisects this area, which can affect cross-country access deeper into the recommended wilderness area. **Solitude** – Apart from hunting season, recreational use is light and the area retains a remote feel with opportunities for solitude. There is an administrative road and coincident public trail that leads to an administrative cabin which nearly bisects this area. Madisons #75 Recommended Wilderness Area receives very little use. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Virtually the entire area in both alternatives is within inventoried roadless area. The 11 acre Madisons #75 area is sandwiched between the Spanish Peaks Unit of the Lee Metcalf Wilderness and recommended wilderness on the Beaverhead-Deerlodge National Forest. The addition of these acres to recommended wilderness area would make for a more logical and manageable wilderness boundary than now exists. The Jourdan Creek trail is difficult to find on the ground, has little tread and is marked with the occasional cairn. This area is very lightly visited. In Madisons #25, mechanized recreation use would no longer be suitable on approximately 3.57 miles of trails in alternative C, and on about 4.97 miles of trails in alternative D. In alternative C there are 12.29 miles of trail closed to motorized and mechanized use; in alternative D it is 11.85 miles. Both alternatives include areas of outstanding mineral rights; 1,770 acres in alternative C and 1,930 acres in alternative D. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high where it is not affected in areas of grazing allotments, with those acres having mostly intact ecological integrity. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area is very highly used during big game season, but outside of that, areas exist with opportunities for solitude. There are opportunities for primitive and/or unconfined recreation.

Gallatin Recommended Wilderness Area

The area description is based on the Gallatin #28 wilderness inventory polygon which is 251,700 acres total. A portion of this polygon is included as the Gallatin Recommended Wilderness Area in alternatives C and D. Portions of this polygon are included as the Gallatin Crest Recommended Wilderness Area in alternative B. The Gallatin Recommended Wilderness Area also includes all of the 276 acre Gallatins #62 wilderness inventory polygon.

Note: There are two different, similar recommended wilderness area names; "Gallatin Crest" in alternative B, and "Gallatin" in alternatives C and D; with unique boundaries in each alternative.

Table 60. Gallatin Recommended Wilderness Area

Analysis Criteria	Description
Acres	99,415 acres (alternative C); 193,709 acres (alternative D)
Description of the recommended boundary - alternative C	The recommended wilderness area is contiguous land, which follows the proposal of the Gallatin Forest Partnership. This recommended wilderness area d includes the adjacent area described as the Sawtooth Recommended Wilderness Area in alternative B. Otherwise it mainly follows the boundary of the "Gallatin Crest Recommended Wilderness Area" in alternative B, with a northern boundary line going further north to a shared line with the proposed Hyalite Recreation Emphasis Area.
Description of the recommended boundary – alternative D	The recommended wilderness area is contiguous land, almost 50 miles long and very nearly double the size in alternative C. Alternative D encompasses all of alternative C, includes all of the wilderness study area to the north, adds a portion of Wheeler Ridge, a portion of the South Cottonwood watershed; and a portion of the Bozeman Creek watershed.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep, following miles of the Gallatin Mountain range. Current vegetation composition is a third Douglas fir, followed by subalpine fir, lodgepole pine, Engelmann spruce, and whitebark pine.

Analysis Criteria	Description
Current uses and management	In alternative C, 97 percent of the recommended wilderness area is within inventoried roadless area; in alternative D, 91 percent of the recommended wilderness area within Inventoried Roadless. Seven grazing allotments total 22,098 acres in alternative C; and 16 allotments total 29,276 acres in alternative D. In alternative C there are a total of 112.93 miles of trail; in alternative D there a total of 229.36 miles. Alternative C has 8.84 miles of nonmotorized trail open to mechanized use. In alternative D, 10.69 miles of all-terrain vehicle trails also open to bikes, 46.14 miles of nonmotorized trails open to bikes, 40.65 miles of motorcycle trails also open to bikes for a total of approximately 97.48 miles of trails open to motorized or mechanized use. In alternative C there are 104.09 miles open to horses or hikers only; in alternative D there are 131.68 miles. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, alternative C has 2,060 acres and alternative D 24,927 acres as currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not. The Windy Pass cabin is located in the recommended wilderness area in alternative C. In alternative D, three rental cabins are in recommended wilderness area; Yellow Mule, Deer Creek and Windy Pass cabins. In alternatives C and D, the communication uses on Steamboat Mountain, Twin Peaks, and Eaglehead are located in the Gallatin Recommended Wilderness Area. An additional communication use on Sheep Mountain is also in this area. Qwest Corporation has an authorization for operation of a 40’ x 48’ passive reflector on Sheep Mountain. The reflector is used to reflect microwave radio beams between the radio terminal located in West Yellowstone and the radio terminal at the Tom Minor repeater.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. There have been multiple large natural fires over the larger area in the past twenty years. Much of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. Areas with grazing may have less vegetation classified as within the historic condition. **Undeveloped** – In alternative C, there are four separate grazing allotments, one with a major portion of the allotment and primary range are in the recommended wilderness area, 1.8 miles of fence and two water developments; another has the entire allotment and primary range but no infrastructure in the recommended wilderness area. The third has just a portion of the allotment and primary range in the recommended wilderness area. The fourth allotment has a portion of the allotment and primary range and 0.9 miles of fence in the recommended wilderness area. In alternative D there are seven grazing allotments, four with a portion of allotment and primary range in recommended wilderness area with no infrastructure. Another allotment has a major portion of the allotment and primary range in the recommended wilderness area, 1.8 mile fence and two water developments. The last has the entire allotment and primary range within the recommended wilderness area but no infrastructure. The majority of the area is undeveloped and not affected by human intervention. From some locations communication facilities can be seen over a wide area. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, and hunting. **Solitude** – Opportunities for solitude are primarily found in the southern and eastern areas and at the interior where there is less visitation and recreation density. Much of the area in both alternatives includes highly visited destinations within a network of trails. **Other Features of Value** – Two research natural areas are included within alternative D, as are the upper reaches of the Bozeman Creek Watershed area.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Most of the recommended wilderness areas are within inventoried roadless area in both alternatives. Alternative C has 2,619 acres of outstanding mineral rights and 13,069 acres of reserved rights and 479 acres of oil and gas leases. Alternative D has 11,839 acres of outstanding mineral rights and 17,245 acres of reserved rights, along with 5,385 acres of oil and gas leases. There could be potential impacts resulting from mineral actions, thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. In both alternatives four commercial communication facilities and uses currently authorized by special use authorization that would no longer be suitable uses would be modified or otherwise removed from recommended wilderness. In alternative C, rental use of the Windy Pass cabin would continue to be a suitable use. Rental use of the three cabins in of alternative D would no longer be a suitable use. The motorized and mechanized trail uses listed would not be suitable in recommended wilderness area for alternatives C and D. In alternative C alternative there would no longer be opportunities for winter motorized use on 2,060 acres. In alternative D, there would no longer be opportunities for winter motorized use on 24,956 acres.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area. The boundaries for each alternative were primarily designed as a result of public comments.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include, under both alternatives: The naturalness of the area is high in many places where it is affected primarily by natural forces, has mostly intact ecological integrity. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include, under both alternatives: The recommended wilderness area offers some locations with opportunity for solitude. There is high amount of primitive and/or unconfined recreation for horseback riding, hiking, backpacking, dispersed camping, and hunting.

Gallatin Crest Recommended Wilderness Area

The area description is based on the Gallatin #28 wilderness inventory polygon which is 251,700 acres total. A 67,358 acre portion of this polygon is included as the Gallatin Crest Recommended Wilderness Area in alternative B. This portion, and other portions of this polygon are included as the Gallatin Recommended Wilderness Area in alternatives C and D. The Gallatin Crest Recommended Wilderness Area also includes all of the 276 acre Gallatins #62 wilderness inventory polygon.

Note: There are two different, similar recommended wilderness area names; "Gallatin Crest" in alternative B, and "Gallatin" in alternatives C and D; with unique boundaries in each alternative.

Table 61. Gallatin Crest Recommended Wilderness Area

Analysis Criteria	Description
Acres	67,633 acres (alternative B)
Description of the recommended boundary – alternative B	The Gallatin Crest Recommended Wilderness Area is contiguous land within the larger boundaries of the Hyalite Porcupine Buffalo Horn Wilderness Study Area (WSA). The boundary follows the forest boundary with Yellowstone National Park to the south, buffers motorized trails and roads in the southwest, follows the wilderness study area boundary in the northwest, to the north follows section lines, creeks and forest boundaries with private ownership to the east. Private or State land ownership within the boundary is excluded from the recommended wilderness area.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep, with ridgetops and boundaries dropping down on either side. Vegetation includes Douglas fir, and lesser amounts of subalpine fir, lodgepole pine, Engelmann spruce, and whitebark pine.
Current uses and management	The recommended wilderness area is contained within the Hyalite Porcupine Buffalo Horn Wilderness Study Area and virtually all within inventoried roadless area. Four grazing allotments total 7,779 acres. The area offers 84.66 miles of trail open to hiker/horse use. There are no motorized or mechanized trails. Areas mapped as a motorized winter ROS are open to winter recreation activities such as snowmobiling. Per the winter ROS mapping, 919 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not. The Forest Service operates the historic Windy Pass cabin as a rental cabin. Three communication uses are authorized. Two of these uses are single user sites located on Steamboat Mountain and Twin Peaks. Northwestern Energy has authorization for the operation of a microwave facility on Steamboat Mountain. The facility consists of a small, 10 foot by 10 foot metal building, a 20 foot antennae and associated solar panels. Qwest Corporation has an authorization for operation of two, 24 foot by 30 foot, passive reflectors on Twin Peaks. The two reflectors are used for microwave telephone relay. The third site is a Forest Service owned building and tower on Eaglehead. Gallatin County, Montana Department of Transportation and a private commercial user are co-located in this Forest Service building and provide additional communication services from this site.

Analysis Criteria	Description
Description of the wilderness characteristics	**Natural Quality** – Outside of areas with grazing, the majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Repeated natural fires occurred across portions of the area since 2000. **Undeveloped** – There are four separate grazing allotments, one with a portion of the allotment and primary range within the recommended wilderness area, and one water development. Two more allotments, have a portion of the allotment and a minor amount of primary range; the fourth allotment has a portion of allotment and a major portion of primary range, three water developments and a pipeline within the recommended wilderness area. However, the majority of this area is undeveloped and not affected by human intervention. Grazing permittees may be authorized motorized use for administration of their allotment. Under alternative B, the communication facilities within the recommended wilderness area would continue. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, and hunting. **Solitude** – There is opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. **Other Features of Value** – All of this recommended wilderness area would also have the management direction of the Hyalite Porcupine Buffalo Horn Wilderness Study Area in effect, unless that direction was changed by Congress.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area is virtually entirely within inventoried roadless area. Winter motorized recreation would remain a suitable use on 919 acres with a winter motorized recreational opportunity spectrum. Rental use of the Windy Pass cabin would no longer be a suitable use in alternative B. The existing communication uses would continue to be suitable uses. There are 1,804 acres of outstanding mineral rights and 3,823 acres of reserved mineral rights. There could be potential impacts resulting from mineral actions, thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	The area was included due to factors such as potential resource threats, existing uses, public input and public values, and manageability. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: For the majority of the recommended wilderness area, naturalness is very high as it is affected primarily by natural forces, and has mostly intact ecological integrity. The undeveloped quality of the area is very high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There is high amount of primitive and/or unconfined recreation for horseback riding, hiking, backpacking, dispersed camping, and hunting.

Lionhead Recommended Wilderness Area

The Lionhead Recommended Wilderness Area was included in the 1987 Gallatin Forest Plan. The area description is based on the Henry's #39 wilderness inventory polygon which is 43,759 acres total. Portions of this polygon are included as a recommended wilderness area in alternatives A, B, C and D however the boundaries are different for each alternative.

Table 62. Lionhead Recommended Wilderness Area

Analysis Criteria	Description
Acres	20,774 acres (alternative A); 17,983 acres (alternative B); 15,738 acres (alternative C); 31,389 acres (alternative D)
Description of the recommended boundary - alternative A	In alternative A, the recommended wilderness area is contiguous land that follows the 1987 Gallatin Forest Plan boundary for this recommended wilderness area. The boundary follows the forest boundary (with the Caribou-Targhee National Forest) to the south, section and half section lines to the west, the Earthquake Lake Geologic Area to the north, follows topographic features such as ridgelines and a buffered Trail #215 to the east.
Description of the recommended boundary – alternative B	In alternative B, the recommended wilderness area is contiguous land that follows the boundaries described above except where the southwestern boundary is buffered from (and excludes) the Continental Divide National Scenic Trail corridor (CDNST).
Description of the recommended boundary – alternative C	In alternative C, the recommended wilderness area follows the same boundaries as alternative B, except the recommended wilderness area is split into two separate pieces, bisected by a Sheep Creek/Coffin Creek trail corridor which is excluded from the recommended wilderness area.
Description of the recommended boundary – alternative D	In alternative D, the recommended wilderness area is contiguous land that follows a longer forest boundary with the Caribou-Targhee National Forest to the south, the forest boundary to the west except where trailheads are buffered, a longer boundary with Earthquake Lake to the north and section lines to the east.
Description of the geography, topography, and vegetation	Much of the area is moderately steep to very steep, climbing to the top of Lionhead Mountain. There are broad open meadows at higher elevations with views of Hebgen Lake and the surrounding area. While much of the high elevations are open, vegetation is a mix of subalpine fir and Douglas fir, then lesser amounts of dry grass, lodgepole pine, and Engelmann spruce.

Analysis Criteria	Description
Current uses and management	The entire recommended wilderness area is within inventoried roadless area in alternatives A, B and C; ninety-four percent is within inventoried roadless area in alternative D. The alternative A recommended wilderness area was included in the 1987 Gallatin Forest Plan. Alternatives B and C are within the boundaries of that Gallatin Forest Plan Recommended Wilderness Area and alternative D is larger than the Gallatin Forest Plan Recommended Wilderness Area. There are 295 acres within a vacant grazing allotment in alternative A, five acres in alternative B, no acres in alternative C and 1,043 acres in two grazing allotments in alternative D. There are approximately 17.52 total miles of trail in alternative A, all of which are currently open to mountain bikes; 10.91 total miles in alternative B, all open to mountain bikes; 1.5 total miles in alternative C all open to mountain bikes, and 34.77 miles in alternative D, with 5.22 miles open to all-terrain vehicles and 29.55 non-motorized miles open to mountain bikes. In all alternatives backcountry skiing is popular in places. In alternatives A, B and C, there are no existing winter motorized activities present. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, in alternative D there are 6,240 acres currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. Most of this area has intact ecological integrity and generally appears to reflect ecological conditions that would be associated with the area without human intervention. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses. Under alternative A there are 295 acres of a vacant grazing allotment that is held as a forage reserve area, with no infrastructure. In alternative B there is a very minor portion of vacant allotment and minor amount of primary range and alternative C has no allotments. There are two allotments in the boundaries of alternative D, a major portion of the allotment and primary range along with 0.6 mile fence in one allotment and a minor portion of the allotment and primary range the second allotment. **Unconfined and/or primitive recreation** – This area offers unconfined and primitive recreation opportunities: horseback riding, hiking, backpacking, dispersed camping, hunting, and back country skiing. **Solitude** – There is opportunity for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Much of the area has been managed as recommended wilderness since 1987. Under all alternatives, all or nearly all, of the area is within inventoried roadless area. All 17.25 miles of nonmotorized trail open to mechanized use would still be suitable in alternative A. Mountain biking would continue to be a suitable use on 10.91 trail miles in alternative B. In alternative C, most of the trails used by mountain bikes have been excluded from the recommended wilderness area; mountain bike use would no longer be suitable on about 1.49 miles of trail to Coffin Lake. In alternative D, all-terrain vehicle use would no longer be suitable on about 5.22 miles of trail, and mountain bike use would no longer be suitable on about 29.55 miles of trail. Using the winter recreational opportunity spectrum discussion from above, there would no longer be opportunities for winter motorized use on 6,240 acres.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	Much of this area was previously included as a recommended wilderness area in the 1987 Forest Plan. There were public comments received in favor of recommended wilderness area designation for this area; the topic of existing mountain bike use on trails in the area was discussed by many public commenters.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is very high as it is affected primarily by natural forces, has mostly intact ecological integrity. The undeveloped quality of the area is very high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There is high amount of primitive and/or unconfined recreation for horseback riding, hiking, backpacking, dispersed camping, hunting, and backcountry skiing.

Sawtooth Mountain Recommended Wilderness Area

The area description is based on the Gallatin #28 wilderness inventory polygon which is 251,700 acres total. Portions of this polygon are included in the Sawtooth Recommended Wilderness Area in alternative B. Portions of this polygon are included in the Gallatin Crest Recommended Wilderness Area in alternative D, and the Gallatin Recommended Wilderness Area in alternatives C and D. The land in the Sawtooth Recommended Wilderness Area is included in the Gallatin Recommended Wilderness Area in alternatives C and D.

Table 63. Sawtooth Mountain Recommended Wilderness Area

Analysis Criteria	Description
Acres	14,828 acres (alternative B)
Description of the recommended boundary - alternative B	The recommended wilderness area is contiguous land that shares its long southern boundary with Yellowstone National Park. The western boundary follows private ownership boundaries and the northern boundary follows the forest boundary and private ownership boundaries. The eastern boundary follows sections lines and private ownership boundaries.
Description of the geography, topography, and vegetation	The western portion includes Sawtooth Mountain and Shooting Star Mountain along with several creek drainages. Existing vegetation includes Douglas fir, subalpine fir, and lodgepole pine, then lesser amounts of Engelmann spruce and whitebark pine.
Current uses and management	Ninety three percent of the areas is within inventoried roadless area. Four grazing allotments total 11,053 acres (74 percent of the area). There are 8.82 miles of nonmotorized trails also open to mechanized use, however current access to those trails from National Forest is difficult due to private land ownership patterns. Bicycles are not allowed to enter through the Yellowstone National Park section of trails. None of this recommended wilderness area is within the Hyalite Porcupine Buffalo Horn Wilderness Study Area. There are no winter motorized recreation uses.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area has been grazed under allotments, with vegetation condition class showing the majority of the area departed from historic vegetation conditions. **Undeveloped** – There are four grazing allotments within recommended wilderness area. Two have a portion of the allotment and primary range within the recommended wilderness area but no infrastructure. The other two have a portion of the allotment and primary range and a total of 0.6 miles of fence and one water development. Motorized use for the grazing permittee may be authorized to maintain their allotment. There are no recreational motorized uses. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities for cross country travel and use of three trails. Current trails open to mechanized use would continue to be suitable in alternative B. However, since public access to these trails is only open from within Yellowstone National Park which prohibits bikes, bicycles cannot access the trail systems. **Solitude** – There are opportunities for solitude as the sights and sounds of human activities and improvements are screened by topography or do not have impact due to distance. Areas that are closer to the boundaries with private lands may have less opportunity. There is a communication site just outside the southern boundary with Yellowstone National Park, which may receive occasional maintenance trips by helicopter. **Other Features of Value** – The western portion of the recommended wilderness area includes part of the Gallatin Petrified Forest. Several of the trails continue into Yellowstone National Park.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	Approximately 93 percent of the area is within inventoried roadless area Ongoing grazing would continue in the recommended wilderness area, including motorized access. There are 604 acres of outstanding mineral rights and 4,667 acres of reserved mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. Under alternative B the access to bikes remains technically allowed, but on the ground access is not provided.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	The area was included due to factors such as potential resource threats, existing uses, public input and public values, and manageability. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has had vegetation affected by lack of natural fire and grazing. Range fencing and water development infrastructure development are noted. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Spanish Peaks East Recommended Wilderness Area

The area description is based on the Madisons #21 wilderness inventory polygon which is 10,235 acres total. Portions of this polygon are included as a recommended wilderness area in alternative D.

Table 64. Spanish Peaks East Recommended Wilderness Area

Analysis Criteria	Description
Acres	5,861 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land which is a narrow area bordered by the Lee Metcalf Wilderness to the west and Gallatin Canyon to the east, private inholdings to the north and a trail junction to the south.
Description of the geography, topography, and vegetation	A river corridor, it is generally timbered and steep with current vegetation dominantly Douglas fir.
Current uses and management	The area is 97 percent inventoried roadless area. Most of this area is in the Gallatin Canyon Day Use Area and is closed to camping and overnight use. It contains a total of 8.24 miles of hiker/horse use only trail. The trails are all closed to mechanized and motorized use as they are portals to the wilderness. There are no winter motorized recreation uses.
Description of the wilderness characteristics	**Natural Quality** – Most of the area would appear natural, although 65 percent of the area has moderate to high departure from historic vegetation conditions. Due to the shared boundaries with private lands, this area likely has had few natural fires allowed to burn, thus contributing to the change in natural vegetation conditions. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no motorized uses. **Unconfined and/or primitive recreation** – This area offers nonmotorized, hiker/horse trail access. **Solitude** – There are significant sights and sounds from the recreation activities and Highway 191, but areas closer to the Lee Metcalf Wilderness boundary should offer better opportunities for solitude. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	The area is 97 percent inventoried roadless area. There are 617 acres of outstanding mineral rights. There could be potential impacts resulting from mineral actions, thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. There are no current recreational motorized or mechanized uses.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area has had vegetation affected by lack of natural fire. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: There are opportunities for solitude. The area offers primitive and/or unconfined recreation for horseback riding, hiking, backpacking, but not overnight camping due to restrictions in place for Gallatin Canyon.

Spanish Peaks South Recommended Wilderness Area

The area description is based on three wilderness inventory polygons, Madisons #64 (160 acres), Madisons #65 (80 acres), and Madisons #66 (2,951 acres) or 3,191 acres total. All of Madisons #64 and #65, as well as a portion of Madisons #66 polygons are included as a recommended wilderness area in alternative D.

Table 65. Spanish Peaks South Recommended Wilderness Area

Analysis Criteria	Description
Acres	2,845 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is comprised of three nearly adjacent separate parts, sharing a northern and eastern boundary with the Spanish Peaks unit of Lee Metcalf Wilderness. The south and western boundaries follow the forest boundary, private property boundaries and a road buffer. The northwest portion is 2,605 acres, the central 80 acres and the south east portion 160 acres.
Description of the geography, topography, and vegetation	Slopes are steep with patchy timber. Current vegetation is a mix of whitebark pine, subalpine fir, lodgepole, and Engelmann spruce.
Current uses and management	Virtually all of this area is within inventoried roadless area. There are no summer motorized trails. There are 4.79 total miles trail in the recommended wilderness area with 1.62 miles are non-motorized trail open to mechanized uses. The remaining 3.17 are open to hiker/horse use only. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 230 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is natural appearing, with most of the vegetation classified as moderate or below in the amount of departure from historic vegetation conditions. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no summer motorized uses. **Unconfined and/or primitive recreation** – This area offers nonmotorized recreation, however the 1.6 miles of current mechanized use would no longer be suitable in alternative D. **Solitude** – This area is adjacent to the Big Sky town and ski area. Private homes and roads are apparent. A Nordic ski center is also adjacent, groomed ski trails are in close proximity. **Other Features of Value** –None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	Virtually all of this area is within inventoried roadless area. There are 120 acres of oil and gas leases. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. The long boundary shared with highly developed and utilized private lands, and the management complexities associated with municipal boundaries would detract from the area's manageability as wilderness and could influence the ability to allow natural fire within the recommended wilderness area. There are no summer motorized recreation uses. About 1.6 miles of trail would no longer be suitable for mechanized recreation use in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 230 acres in alternative D.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces, with mostly intact ecological integrity. The undeveloped quality of the area is high. The social characteristics that provide the basis for suitability include: There are areas that provide opportunities for solitude. There are opportunities for primitive and/or unconfined recreation.

Taylor Hilgard Recommended Wilderness Area

The area description is based on the Madisons #12 wilderness inventory polygon which is 111,565 acres total. A portion of this polygon is included as the Taylor Hilgard Recommended Wilderness Area in alternatives B, C and D. The boundary is the same for alternatives B and D, and larger in alternative C. Other portions of this polygon are included as the Cabin Creek North Recommended Wilderness Area and the Cabin Creek South Recommended Wilderness Area in alternative D.

Table 66. Taylor Hilgard Recommended Wilderness Area

Analysis Criteria	Description
Acres	4,466 acres (alternative B and D); 6,824 acres (alternative C)
Description of the recommended boundary - alternatives B, D	The recommended wilderness area is contiguous land. The northern boundary is adjacent the Taylor Hilgard Unit of the Lee Metcalf Wilderness. The southern boundary buffers by one half mile Highway 287 which parallels Earthquake Lake. The western boundary follows the forest boundary and the eastern buffers a road along Beaver Creek.
Description of the recommended boundary – alternatives C	The recommended wilderness area is contiguous land. The boundaries are similar to alternative B and D, however the width of the buffers from roads to the east and south have been reduced resulting in 2,358 acres added to the recommended wilderness area, as proposed by the Gallatin Forest Partnership.
Description of the geography, topography, and vegetation	This area is very steep, rising up from the edge of the highway to the ridgeline above. Current vegetation composition is 25 percent subalpine fir, 20 percent Engelmann spruce, 15 percent Douglas fir, the remainder dry grass, and transitional forest.
Current uses and management	In alternatives B and D, the entire area is within inventoried roadless area; in alternative C it is 89 percent within inventoried roadless area. No summer-use trails are within the area. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping for alternatives B, C and D boundaries all acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access, or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – The majority of this area is very natural appearing and the current vegetation is primarily affected by natural ecological processes. There is no history of grazing allotments. Most of the area is within the historic vegetation conditions. **Undeveloped** – The majority of this area is undeveloped and not affected by human intervention. There are no trails. **Unconfined and/or primitive recreation** – This area has unconfined and primitive recreation opportunities, for summer off-trail use, however the steep terrain may limit access. **Solitude** – There is opportunity for solitude. Under alternative C, where areas are adjacent to the highway, there would be more impact of sights and sounds. **Other Features of Value** – None noted.
The ability to protect and manage the area so as to preserve its wilderness characteristics	All of the area in alternatives B and D, and 89 percent of the area in alternative C is within inventoried roadless area. Winter motorized recreation would remain a suitable use on the 4,466 acres in alternative B. Winter motorized recreation would not be a suitable use on the 6,824 acres in alternative C and the 4,466 acres in alternative D. There are no summer motorized recreational uses. The area is adjacent to designated wilderness with limited summer access.

Analysis Criteria	Description
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	The area was included due to factors such as potential resource threats, existing uses, public input and public values, and manageability. There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: The naturalness of the area is high as it is affected primarily by natural forces, and has mostly intact ecological integrity. The undeveloped quality of the area is very high. The social characteristics that provide the basis for suitability include: The area offers opportunity for solitude. There are opportunities for primitive and/or unconfined recreation.

Yankee Jim Lake Recommended Wilderness Area

The area description is based on the Gallatins #2 wilderness inventory polygon which is 8,199 acres total. A portion of this polygon is included as a recommended wilderness area in alternative D.

Table 67. Yankee Jim Lake Recommended Wilderness Area

Analysis Criteria	Description
Acres	6,292 acres (alternative D)
Description of the recommended boundary - alternative D	The recommended wilderness area is contiguous land. The north, east and south boundaries buffer powerlines and roads. The western boundary follows the forest boundary and private land boundaries and in places uses straight lines to cut diagonally across sections.
Description of the geography, topography, and vegetation	Much of the area is moderately steep and includes Sphinx Mountain and Yankee Jim Lake. Existing vegetation includes mostly Douglas-fir forest, along with dry grass.
Current uses and management	Around sixty percent of the area is within an inventoried roadless area. Grazing allotments cover 4,281 acres. There are a total of 1.45 miles of trail, all is non-motorized trail open to mechanized recreation use. Areas mapped as a motorized winter recreational opportunity spectrum are open to winter recreation activities such as snowmobiling. Per the winter recreational opportunity spectrum mapping, 107 acres are currently open to snowmobiling. It should be noted that this is a mapping exercise. The acreage calculations do not consider topography, access or consistent snow. It only reflects the number of acres legally open to snowmobiling, whether the terrain is accessible by snowmobile or not.
Description of the wilderness characteristics	**Natural Quality** – Ninety percent of the vegetation is classified as in moderate to high departure from historic vegetation conditions. There are almost thirty acres of noxious weeds inventoried and much of the area is grazed. **Undeveloped** – There are three allotments in the recommended wilderness area. One has a major portion of the allotment and primary range, 0.9 mile fence and one water development in the recommended wilderness area. The second has a major portion of the allotment and primary range, 5.8 miles fence and three water developments in the recommended wilderness area. The third has the entire allotment and primary range in the recommended wilderness area along with two water developments. **Unconfined and/or primitive recreation** – This area has two miles of a trail open to hiker, hose and mountain bikes. **Solitude** – This area is located along the west side of the Yellowstone River corridor, a major byway into Yellowstone National Park and is surrounded by private lands. As it is not adjacent to designated wilderness, the relatively small area does not lend itself to opportunities for solitude. **Other Features of Value** –None noted.

Analysis Criteria	Description
The ability to protect and manage the area so as to preserve its wilderness characteristics	About sixty percent of the area is within an inventoried roadless area. A long segment of boundary shared with private ownership could influence the ability to allow natural fire within the recommended wilderness area. Managing for wilderness character would be difficult with the heavy adjacent infrastructure associated with Highway 89 south, and private lands nearly surrounding the recommended wilderness area. There are 1,370 acres, (about twenty percent of the area), with outstanding mineral rights. There could be potential impacts resulting from mineral actions thereby detracting from existing wilderness characteristics. It is not predictable whether these rights would be exerted. There are no summer motorized recreation uses. About 1.45 miles of trail would no longer be suitable for mechanized recreation use in alternative D. Using winter recreational opportunity spectrum as described above, there would no longer be opportunities for winter motorized use on 107 acres.
Summary of the factors considered and the process used in evaluating the area and developing the alternatives	There were public comments received in favor of recommended wilderness area designation for this area.
Summary of the ecological and social characteristics that would provide the basis for suitability for inclusion in the National Wilderness Preservation System	The ecological characteristics that provide the basis for suitability include: Most vegetation is classified as in moderate to high departure from historic vegetation conditions. Range fencing and water development infrastructure development are noted. The social characteristics that provide the basis for suitability include: The area does not offer much opportunity for solitude, with a relatively small size for an area not attached to existing wilderness. There are opportunities for primitive and/or unconfined recreation.

Rationale for Areas not Included as Recommended Wilderness in Draft Environmental Impact Statement (DEIS) Alternatives

Not all of the lands in the wilderness inventory are included as recommended wilderness in an alternative. The rationale for excluding wilderness inventory polygons, or portions thereof, from further analysis in any alternative in the draft environmental impact statement is documented in table 68 and table 69. Maps of all wilderness inventory polygons are provided in appendix D of the 2018 Proposed Action (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd567792.pdf).

The primary factor for including or excluding all or a portion of a wilderness inventory polygon is the future manageability of a recommended wilderness area to support management of the area for wilderness and other adjacent uses.

Per Forest Service Handbook 1909.12, Chapter 70, each area recommended as wilderness in any alternative considered in detail must have a clearly defined boundary that supports management of the area for wilderness and other adjacent uses. Boundaries should be easy to identify and locate on the ground and may use locatable natural features (such as ridges and perennial streams), locatable human features and setbacks from locatable human features (such as roads, trails, and powerlines), boundary lines, section lines, lines between locatable points, or a metes and bounds survey.

Proposed recommended wilderness area boundaries were buffered from adjacent roads or trails to provide a manageable buffer for road or trail maintenance. Non national forest lands may also have been excluded from recommended wilderness areas. Once manageable boundaries were established, some areas larger than 5,000 acres in the wilderness inventory were smaller than 5,000 acres; too small to be recommended wilderness area.

Many areas less than 5,000 acres were included in wilderness inventory because they are attached to existing designated wilderness or lands managed as wilderness by other Federal agencies. Small areas attached to other Federal lands tend to be surrounded by non-wilderness use and difficult to manage for wilderness character.

Small additions to existing designated wilderness areas would result in less manageable boundaries than the boundaries in existence for the past 30 years, unless small additions are well defined blocks of land.

In addition, the wilderness character of some wilderness inventory areas in the Sioux, Ashland, and Pryor Mountain Geographic Areas is affected by the density of all motor vehicle trails, which are under permit for motorized access for grazing infrastructure, and may be through-routes used for access beyond the forest boundary.

Table 68 displays the rationale for excluding all acres within 40 of the 80 wilderness inventory polygons from any alternative.

Table 68. Wilderness inventory polygons not analyzed for recommended wilderness

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Acres	Rational
Sioux	Sioux 3	5,235	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.
Sioux	Sioux 29	8,515	Wilderness characteristics were affected by: density of all motor vehicle trails, trails under permit for motorized access for grazing infrastructure, through-routes used for access beyond the forest boundary, and an isolated road in center of polygon.
Ashland	Ashland 14	12,218	Wilderness characteristics affected by: density of all motor vehicle trails under permit for grazing access, through routes used for access beyond the forest boundary, and roads extending into polygon.
AB	AB 8	9,170	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area. Even though small remaining areas were adjacent to wilderness, they would not enhance manageability.
AB	AB 17	5,085	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.
AB	AB 18	5,660	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area. Even though small remaining areas were adjacent to wilderness, they would not enhance manageability.
AB	AB 20	7,772	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.
AB	AB 46	268	This small area would not enhance the manageability of the adjacent wilderness.
AB	AB 48	94	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone wilderness.
AB	AB 50	406	This small area would not enhance the manageability of the adjacent wilderness.
AB	AB 54	1,249	This small area would not enhance the manageability of the adjacent wilderness.
AB	AB 63	649	This small area is very narrow after buffering the adjacent road and powerline, and would not enhance the manageability of the adjacent wilderness.
AB	AB 67	1,556	The area becomes smaller and narrower after buffering adjacent roads, and would not enhance the manageability of the adjacent wilderness.
AB	AB 68	30	Very small and the addition would not enhance the manageability of the adjacent existing Absaroka Beartooth Wilderness, bringing roads closer to the wilderness.
AB	AB 69	21	This very small area would not enhance the manageability of the adjacent wilderness, bringing roads closer to the wilderness.
AB	AB 70	16	This very small area would not enhance the manageability of the adjacent wilderness, bringing roads closer to the wilderness.
AB	AB 71	378	This very small area would not enhance the manageability of the adjacent wilderness, bringing roads closer to the wilderness.
AB	AB 72	2,035	The area becomes smaller and narrower after buffering adjacent roads, and would not enhance the manageability of the adjacent wilderness.
AB	AB 74	4,323	The area becomes a small, narrow polygon after buffering roads and pipelines, and would not enhance the manageability of the adjacent wilderness.

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Acres	Rational
AB	AB 79	349	This very small area would not enhance the manageability of the adjacent wilderness.
AB	AB 83	2,536	The area becomes even smaller and narrower after buffering roads, and would not enhance the manageability of the adjacent wilderness
AB	AB 85	1,941	The area becomes even smaller and narrower after buffering roads, and would not enhance the manageability of the adjacent wilderness.
AB	AB 94	993	The area becomes even smaller and narrower after buffering roads, and would not enhance the manageability of the adjacent wilderness
BBC	Crazies 38	6,885	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.
MHG	Gallatins 19	7,853	After roads were buffered, the remaining area was not large enough for a stand-alone recommended wilderness area.
MHG	Gallatins 24	6,065	After roads were buffered, the remaining area was not large enough for a stand-alone recommended wilderness area.
MHG	Gallatins 31	5,193	After roads were buffered, the remaining area was not large enough for a stand-alone recommended wilderness area.
MHG	Gallatins 55	40	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Gallatins 56	609	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Madisons 76	632	The small addition would not enhance the manageability of the adjacent wilderness as it is bounded on three sides by private lands.
MHG	Hebgen 4	5,680	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.
MHG	Hebgen 40	271	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 41	93	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 42	36	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 43	7	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 44	364	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 45	297	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 81	1,097	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Hebgen 82	3,579	The area adjacent to Yellowstone National Park is too small to be manageable as a stand-alone recommended wilderness area.
MHG	Henrys 5	7,453	After adjacent roads were buffered, the remaining area was not large enough to qualify as a stand-alone recommended wilderness area.

AB = Absaroka Beartooth Mountains; BBC = Bridgers, Bangtail, and Crazy Mountains; MHG = Madison, Henrys Lake, and Gallatin Mountains; GA = Geographic Area

Table 69 below displays the alternatives in which 40 of the 80 wilderness inventory polygons are included, and the partial acreages of these polygons which are not included in any alternative.

The acreage not included in any alternative is the area omitted to create a manageable boundary, by following natural features, property lines, or buffering roads, powerlines or other features. Where relevant, additional rationale is provided.

Table 69. Wilderness inventory polygons included (in whole or in part), in alternatives A, B, C, or D

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Total Acres	Polygon Acres Not Analyzed in Any Alternative	Inventoried Polygon Inclusion in Alternatives
Ashland	Ashland 22	22,920	6,037	Alternative D: 16,883 acres included in Tongue River Breaks Recommended Wilderness Area. The boundary follows the 1986 Low Development Area boundary; using this boundary avoids including additional infrastructure in the recommended wilderness area.
Ashland	Ashland 33	12,691	2,897	Alternative D: 9,794 acres included in Cook Mountain Recommended Wilderness Area The boundary follows the 1986 Low Development Area boundary; using this boundary avoids including additional infrastructure in the recommended wilderness area.
Ashland	Ashland 95	10,502	0	Alternative D: 10,502 acres included in King Mountain Recommended Wilderness Area
Pryors	Pryors 1	13,547	1,602	Alternatives A, B, C: 6,804 acres; Alternative D: 11,929 acres included Lost Water Canyon
Pryors	Pryors 9	41,976	18,873	Alternative D: 10,366 acres included Bear Canyon Recommended Wilderness Area and 12,737 acres included in Big Pryor Recommended Wilderness Area. Wilderness characteristics in remaining area were affected by density of all motor vehicle trails, including through-routes used for access beyond the forest boundary.
Pryors	Pryors 10	8,125	359	Alternative D: 7,766 acres included in Punch Bowl Recommended Wilderness Area
Pryors	Pryors 96	1,152	90	Alternative D: 1,062 acres included in Lost Water Canyon Recommended Wilderness Area

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Total Acres	Polygon Acres Not Analyzed in Any Alternative	Inventoried Polygon Inclusion in Alternatives
AB	AB 6	32,983	7,180	Alternative A: 809 acres; Alternative B and C: 801 acres; Alternative D: 25,803 acres included in Line Creek Plateau Recommended Wilderness Area
AB	AB 7	7,259	4,082	Alternative D: 3,177 acres included in Phelps Creek Recommended Wilderness Area
AB	AB 11	34,613	10,104	Alternatives A and B: 802 acres included in Red Lodge/Hell Roaring Recommended Wilderness Area and 3,917 acres in Burnt Mountain Recommended Wilderness Area; Alt C: 798 acres in Red Lodge/Hell Roaring Recommended Wilderness Area; Alt D: 12,039 acres included in Red Lodge Creek Recommended Wilderness Area and 12,470 acres in West Fork Rock Creek Recommended Wilderness Area.
AB	AB 15	56,221	23,816	Alternative D: 7,036 acres in Chico Peak Recommended Wilderness Area , 9,540 acres in Dome Mountain Recommended Wilderness Area and 15,829 acres in Emigrant Peak Recommended Wilderness Area
AB	AB 16	24,886	7,464	Alternatives A, B, C: 114 acres in Mystic Recommended Wilderness Area; Alternative D: 17,422 acres in East Rosebud to Stillwater Recommended Wilderness Area
AB	AB 23	13,037	1,440	Alternative D: 11,597 acres include in Strawberry Creek Recommended Wilderness Area
AB	AB 26	5,375	2,536	Alternative D: 2,839 acres included in Mount Rae Recommended Wilderness Area
AB	AB 30	7,969	2,083	Alternative D: 5,886 acres included in Tie Creek Recommended Wilderness Area
AB	AB 32	129,575	44,135	Alternative D: 85,444 acres included in Deer Creek Recommended Wilderness Area
AB	AB 52	2,460	1,525	Alternative D: 935 acres included in Deckard Flats

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Total Acres	Polygon Acres Not Analyzed in Any Alternative	Inventoried Polygon Inclusion in Alternatives
AB	AB 57	1,643	842	Alternatives B, C and D: 801 acres included in Line Creek Plateau Recommended Wilderness Area
AB	AB 73	2,725	1,634	Alternative D: 1,091 acres included in West Woodbine Recommended Wilderness Area
AB	AB 77	1,109	552	Alternative D: 557 acres included in Sheep Creek Recommended Wilderness Area
AB	AB 78	36	0	Alternative D: 36 acres included in North Fork Recommended Wilderness Area
AB	AB 80	388	0	Alternative A, B, C: 388; Alternative D:362 acres included in Republic Recommended Wilderness Area
AB	AB 84	2,497	1,274	Alternative D: 1,223 acres included in Knowles Peak Recommended Wilderness Area
AB	AB 93	136	0	Alternatives A, B, C: 132 acres included in Mystic Recommended Wilderness Area; D: 136 acres included in Mystic Recommended Wilderness Area
BBC	Bridgers 34	41,500	15,394	Alternative D: 26,106 acres included in West Bridger Recommended Wilderness Area
BBC	Bridgers 35	12,453	6,302	Alternative D: 6,151 acres included in Blacktail Peak Recommended Wilderness Area
BBC	Crazies 36	35,664	5,938	Alternative D: 29,726 acres included in Crazy Mountains Recommended Wilderness Area
BBC	Crazies 37	48,141	18,231	Alternative D: 29,910 acres included in Crazy Mountains Recommended Wilderness Area
MHG	Gallatins 2	8,199	1,907	Alternative D: 6,292 acres included in Yankee Jim Lake Recommended Wilderness Area
MHG	Gallatins 28	251,700	56,317	Alternative B: 67,358 acres in Gallatin Crest Recommended Wilderness Area and 14,828 acres in Sawtooth Mountain Recommended Wilderness Area. Alternative C: 99,139 acres in Gallatin Recommended Wilderness Area. Alternative D:

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Total Acres	Polygon Acres Not Analyzed in Any Alternative	Inventoried Polygon Inclusion in Alternatives
				193,709 acres included in Gallatin Recommended Wilderness Area
MHG	Gallatins 62	276	0	Alternative B: 276 acres in Gallatin Crest Recommended Wilderness Area; Alternative C and D: 276 acres included in Gallatin Recommended Wilderness Area
MHG	Madisons 12	111,565	68,377	Alternative B: 4,466 acres; Alternative C: 6,824 acres in Taylor Hilgard Recommended Wilderness Area. Alternative D: 17,092 acres in Cabin Creek North and 19,272 acres in Cabin Creek South and 4,466 acres included in Taylor Hilgard Recommended Wilderness Area.
MHG	Madisons 13	42,646	13,680	Alternative D: 28,966 acres included in Buck Creek Recommended Wilderness Area
MHG	Madisons 21	10,235	4,374	Alternative D: 5,861 acres included in Spanish Peaks East Recommended Wilderness Area
MHG	Madisons 25	17,588	1,170	Alternative C: 15,536 acres and D: 14,357 acres included in Cowboy Heaven Recommended Wilderness Area
MHG	Madisons 64	160	0	Alternative D: 160 acres included in Spanish Peaks South Recommended Wilderness Area
MHG	Madisons 65	80	0	Alternative D: 80 acres included in Spanish Peaks South Recommended Wilderness Area
MHG	Madisons 66	2,951	346	Alternative D: 2,605 acres included in Spanish Peaks South Recommended Wilderness Area
MHG	Madisons 75	11	0	Alternative D: 11 acres included in Cowboy Heaven
MHG	Henrys 39	43,759	12,296	Alternative A: 20,774 acres; Alternative B: 17,983 acres; Alternative C: 15,738 acres; Alternative D: 31,389 acres included in Lionhead Recommended Wilderness Area

GA	Wilderness Inventory Polygon Name	Wilderness Inventory Polygon Total Acres	Polygon Acres Not Analyzed in Any Alternative	Inventoried Polygon Inclusion in Alternatives
Totals		1,060,753	342,857	Of those polygons that were selected to be in Alternatives A, B, C or D, sixty-eight percent of the land within the polygon areas were included in an alternative.

Appendix E: Compatibility of the Revised Forest Plan with Relevant Plans of Other Public Agencies

Introduction

The Forest Service reviews the relevant planning and land use policies of other public agencies to understand and give consideration to those agencies' objectives. The Forest Service is not required to ensure that a Forest Service land management plan is in accord with State, local or Tribal resource and land management plans. In the course of considering those agencies' objectives, however, the Forest Service considers ways the Forest Service land management plan could contribute to common objectives, address impacts, resolve or reduce conflicts, and contribute to compatibility between Forest Service and other agencies' plans.

The Custer Gallatin National Forest reviewed County Growth Policies/County Comprehensive Plans, the City of West Yellowstone Growth Policy , State Forest Action Plans, State Wildlife Action Plans, Statewide Comprehensive Outdoor Recreation Plans, Bureau of Land Management Resource Management Plans, the Yellowstone National Park Foundation Document , and the Beaverhead Deerlodge, Caribou Targhee, and Shoshone National Forest Plans. Because the Helena–Lewis and Clark National Forest is undergoing plan revision, a compatibility review is not provided for that forest plan. Cooperating agencies contributed the review of plans within their jurisdictions.

Forest plans set a vision through desired conditions (DC) and goals, and then specify the standards, guidelines, objectives, and suitable uses to achieve this vision. This compatibility review focuses on the higher-level desired conditions and goals, rather than the more specific plan components, except where provided by a cooperating agency. The review is structured to display the most closely related forest plan component adjacent to the corresponding county plan component. Not all elements of another agency's plan are relevant to a forest plan. Individual sections of the Custer Gallatin Draft Environmental Impact Statement may evaluate more specific components of the plans evaluated in this appendix, or may evaluate additional plans.

County and City Growth Policies (Montana) and County Comprehensive Plan (South Dakota)

In 1999, Montana passed a "growth policy" statute (MCA 76-1-601 through 76-1-606) that changed the terms "master plan" and "comprehensive plan" to "growth policy" and established minimum requirements for growth policies. A growth policy is optional and non-regulatory. Montana State statutes allow, but do not require zoning. A number of elements are required in a growth policy including community goals and objectives; existing characteristics and projected trends; policies, regulations, and other tools to achieve the goals and objectives of the growth policy; a public infrastructure strategy; an implementation strategy; an explanation of coordination and cooperation with other jurisdictions; an explanation of subdivision decision making and public hearings process; and an evaluation of the potential for fire and wildland fire. The extent to which a growth policy addresses the elements is at the full discretion of the

governing body. All ten Montana counties with Custer Gallatin National Forest lands have a growth policy.

One county in South Dakota has Custer Gallatin National Forest lands; Harding County has a county comprehensive plan. South Dakota Codified Law Title 11 Chapter 2 addresses county planning and zoning. Purposes of a county comprehensive plan are to protect and guide the physical, social, economic, and environmental development of the county; to protect the tax base; to encourage a distribution of population or mode of land utilization that will facilitate the economical and adequate provisions of transportation, roads, water supply, drainage, sanitation, education, recreation, or other public requirements; to lessen governmental expenditure; and to conserve and develop natural resources.

Growth policies and county comprehensive plans set an overall vision that respect the goals, objectives, policies, and strategies of growth policies and county comprehensive plans are similar to forest plan desired conditions and goals. Forest plan standards, guidelines, and suitability are the rules the Forest Service must follow to achieve its vision. Growth policies and county comprehensive plans do not typically contain the rules to achieve the vision. The review of compatibility of the country planning documents therefore focuses on forest plan desired conditions and goals, rather than the objectives, standards, guidelines and suitability, except where noted by a cooperating agency. The review is structured to display the most closely related forest plan component adjacent to the corresponding county plan component. Not all elements of a county plan are relevant to a forest plan, for instance guidance for housing or industrial development. Review of the eleven county growth policies/county comprehensive plan are arranged west to east; from Madison County, Montana to Harding County, South Dakota.

Cities, as well as counties, in Montana may adopt growth policies. The growth policy for West Yellowstone, Montana is reviewed for compatibility with the revised forest plan because the city limits are adjacent to the national forest.

Madison County, Montana

Draft Revised Plan Components	Madison County, MT 2012 Growth Policy Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses, and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.	**Goal 3. The Environment.** Protect the quality of our air
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized.	**Goal 3. The Environment.** Protect the quality of our soils… **Development Policy 6.** New development should be... located, designed, and scaled to preserve… any environmentally sensitive areas (such as steep slopes and erodible soils)
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **Riparian Management Zones (RMZ)** **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism.	**Guiding Principle #2.** Protect our river corridors **Land Use Objective (c)** Keep development out of the floodplain and riparian areas. **(d)** Locate and design developments to maintain the water resource and water rights (in accordance with state law). **Goal 3. The Environment.** Protect the quality of our groundwater, surface waters, fish habitat **Development Policy 2.** New development should be...demonstrate that surface water and groundwater will not be degraded, according to state standards. Developments adjoining streams or lakes should use appropriate best management practices to protect water quality and riparian habitats **Development Policy 6.** New development should be...located, designed, and scaled to preserve... any environmentally sensitive areas (for example, riverbank, floodplain, and critical watersheds). **Land Conservation Policy 1**. Land conservation/utilization activities should be… targeted towards…watershed protection including river corridors and riparian areas…

Draft Revised Plan Components	Madison County, MT 2012 Growth Policy Components
Vegetation **Multiple Desired Conditions for forested and other vegetation types.** **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Goal 3. The Environment.** Protect the quality of our vegetation **Development Policy 6.** New development should be...located, designed, and scaled to preserve... any environmentally sensitive areas (for example, plants of special concern)
Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Environment Objective (f).** Promote and support noxious weed control.
Fire and Fuels **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an ecological process.	**Development Policy 5.** New development should be evaluated according to the fire risk rating factors developed by the State of Montana (5) and the fire management objectives listed in (6). Where new development falls into high-extreme risk categories, it should be redesigned to reduce risk to the low level category. Include Madison County Subdivision Planning. Fire Protection Board and the local fire district in fire risk evaluations.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-4.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Goal 3. The Environment.** Protect the quality of our wildlife habitat **Development Policy 6.** New development should be...located, designed, and scaled to preserve…any environmentally sensitive areas (for example, animals of special concern and important wildlife habitat) **Land Conservation Policy 1**. Land conservation/utilization activities should be… targeted towards…important wildlife habitat

Draft Revised Plan Components	Madison County, MT 2012 Growth Policy Components
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.	**Goal 2. The Economy.** Strengthen the major sectors of our local economy, and diversify the economic base. Encourage the responsible development of natural resources. **Objective (a).** Support growth in agriculture, forestry, mining, renewable energy, recreation, and tourism, retirement and senior-related services, entrepreneurial enterprises, and construction activity. **(b).** Utilize and protect the resources which support these major economic sectors. **(d).** Acknowledge the economic value of the county's fisheries, wildlife, and wildlife habitat.
Cultural and historic resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Goal 3. The Environment**. Protect the quality of our cultural and historic resources **Development Policy 7.** New development should be... designed and scaled to respect neighboring land uses, including historic resources. **Land Conservation Policy 1**. Land conservation/utilization activities should be… targeted towards historic preservation...
Infrastructure, Roads and Trails **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Goal 5. Public Services.** Provide high-quality public services to local residents and visitors in safe, fair, and cost-effective ways.
Recreation **Developed Recreation DC 2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities. **Dispersed Recreation DC 1.** Dispersed opportunities are available across the forest for a wide variety of users where compatible with environmental resources, recreation settings and social interactions such as user conflicts and crowding.	**Goal 4. Recreation.** Support a variety of recreational opportunities for both local residents and visitors **Land Conservation Policy 1**. Land conservation/utilization activities should be… targeted towards…areas of recreational opportunity...

Draft Revised Plan Components	Madison County, MT 2012 Growth Policy Components
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills, and grasslands.	**Goal 3. The Environment:** Protect the quality of our scenic views **Development Policy 8.** New development should be... located, designed, and scaled to preserve scenic views and vistas from public lands and public rights-of-way. **Land Conservation Policy 1**. Land conservation/utilization activities should be… targeted towards… scenic views and vistas.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands.	**Recreation objective (a)** Retain public access to public lands and waters. (b). Support opportunities to create additional public access in cooperation with willing private landowners. **(c).** Minimize conflicts between recreationalists and private landowners. **(d).** Support opportunities for public/private land exchanges which will secure high-value recreational resources for public use. **Development Policy 14.** New development should... in the case of land exchanges which put public lands into private ownership, uses of a privately acquired exchange tract should reflect the prevailing land use in the area immediately surrounding the tract. The exchange of lands should not trigger more intensive land use (for example, residential development in an area of livestock grazing). Similarly, privately held leases on public lands should not introduce residential development into an area of traditional resource-based use (for example, agriculture, logging, mining, and outdoor recreation).
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Goal 6. Communication, Coordination, Citizen Participation** Objective (b). Meet regularly with State and Federal land managers to discuss respective land use plans, management strategies, and specific projects/project proposals. **Development Policy 17.** New development should… involve consultation with appropriate land management agencies during project design and review stages, in the case of any proposed development located within two miles of public lands. Involve consultation with appropriate resource management agencies as well.

Gallatin County, Montana

Draft Revised Plan Components	Gallatin County, MT 2003 Growth Policy Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Goal. Protect Air Quality.** **Policies:** 2. Require development to demonstrate compliance with local, State and Federal air quality regulations or standards. 3. Encourage development to protect air quality and reduce particulate matter.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **Invasive Species** **Goal 3.** Agreements and memorandums of understanding with other Federal, State or County agencies, Tribes, non-government organizations, and other partner organizations address invasive species issues. Collaborative efforts such as "cooperative weed management areas," "cooperative invasive species management areas," or similar collaborative partnerships support invasive species management across the landscape.	**Goal. Minimize Soil Erosion** **Policies:** 1. Ensure development demonstrates compliance with local, State and Federal regulations and standards relating to soil erosion. Support erosion and sediment control measures during road construction. 2. Encourage development to comply with revegetation and weed control plans as prescribed by the Gallatin County Weed Department through proper weed management plans and memorandums of understanding.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-8.** Municipal watersheds provide long-term predictable amounts of clean drinking water for those downstream communities that derive their principal water from them.	**Goal. Protect Water Quality** **Policies** 1. Minimize adverse impacts of development on rivers, streams and riparian areas. Encourage development to demonstrate adequacy of setbacks and buffers. 2. Require development to demonstrate compliance with local, State and Federal water quality regulations and standards. 3. Encourage development to mitigate adverse impacts to neighboring properties, rivers, streams and riparian areas due to runoff. 5. Encourage development to mitigate adverse impacts on wetlands, and require compliance with local, State and Federal wetland protection regulations and standards. 6. Limit development to appropriate uses in identified source water protection areas. 7. Encourage development to document efforts to protect water quality.

Draft Revised Plan Components	Gallatin County, MT 2003 Growth Policy Components
DC-12. Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources.	**Goal. Assure Sustained Water Quantity** **Policies** 1. Encourage development to assess both the immediate and the long-term, cumulative impacts on water quantity. 2. Encourage development to document adequate water quantity. **Goal. Protect Important Habitat (Fish, Wildlife and Plant)** **Policies** 2. Encourage development to conserve important habitat. Encourage livestock operations to minimize adverse impacts on important habitat areas. Encourage development to buffer important habitat areas.
Vegetation **Multiple Desired Conditions for forested and other vegetation types.** **At Risk Plant Species DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Goal. Protect Important Habitat (Fish, Wildlife and Plant)** **Policies** 2. Encourage development to conserve important habitat. Promote open space corridors for identified wildlife migration corridors. Encourage livestock operations to minimize adverse impacts on important habitat areas. Encourage development to buffer important habitat areas.
Soils, **DC-2.** Areas of highly erodible soils or land types with high mass failure potential are not destabilized. **Watershed and Aquatics** **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **Fire and Fuels** **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an ecological process.	**Goal: Protect Human Life and Property From Natural Hazards.** **Policies:** 1. Encourage development in natural hazard areas to mitigate the potential hazard(s). 2. Encourage development on steep slopes to mitigate potential hazards. Prohibit development and road building on slopes greater than 25 percent. 3. Restrict development in flood hazard areas to protect property and life from flooding. Encourage compliance with the floodplain regulations and the standards developed by the Department of Health. Encourage development to protect neighboring properties and communities from potential flood hazards associated with new development. 4. Discourage development in areas prone to wildland fire to protect property and life from fires. Encourage mitigation of fire hazards, including creation of defensible space for each structure, prior to final plat.

Draft Revised Plan Components	Gallatin County, MT 2003 Growth Policy Components
Wildlife **DC 5.** Landscape patterns throughout the planning area provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC 6.** Habitat conditions within and near Custer Gallatin boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries. **DC 7.** Human-related foods and attractants are unavailable to wildlife. Natural wildlife foraging patterns are the norm, while food conditioning and habituation of animals, and associated wildlife conflicts with humans do not occur. **Watershed and Aquatics** **DC-10.** Riparian vegetation provides breeding, feeding and sheltering opportunities, as well as habitat connectivity and movement corridors for a wide range of terrestrial, semi-aquatic and avian wildlife species. **Permitted Livestock Grazing** **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Goal. Protect Important Habitat (Fish, Wildlife and Plant)** **Policies** 2. Encourage development to conserve important habitat. Promote open space corridors for identified wildlife migration corridors. Encourage livestock operations to minimize adverse impacts on important habitat areas. Encourage development to buffer important habitat areas.
Cultural and historic resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Goal.** Protect Historic and Pre-Historic Features

Draft Revised Plan Components	Gallatin County, MT 2003 Growth Policy Components
Infrastructure; Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Goal. Provide a Safe and Efficient Transportation System** **Policies** 1. Promote multi-modal transportation opportunities. Encourage development to be consistent with countywide trails plan (see computability review below). 2. Encourage development to provide coordinated circulation patterns. Encourage development to document proposed access and road systems, and their relationship to existing and future arterial locations, and proposed trail plans. Encourage development to coordinate proposed new roads with both existing and planned roads, taking into consideration current, proposed and future circulation and development patterns. Encourage development to provide and develop access to land not previously reviewed under the Subdivision regulations when reasonable access to that land is through the proposed development and the circulation pattern is enhanced with multiple access points. 3. Encourage development to document mitigation of erosion, noxious weed infestation and visual impacts associated with the construction of new roads. 4. Encourage development to document mitigation of dust, noise, and general safety related to speed, intersections, and pedestrian crossings.
Infrastructure; Roads and Trails **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines). **DC-5.** The trail system accommodates current and reasonably foreseeable recreational demands and ability of the Forest Service to provide sustainable maintenance through volunteer, partnership, or agency resources. **Recreation Emphasis Areas** **DC-1.** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to changing recreation desires. Local communities can readily access these areas for a variety of motorized and non-motorized experiences. **DC 2.** Trail systems connect communities to recreation emphasis areas. **Land Status and Ownership, Access, and Land Uses** **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands.	**Gallatin County Trails Report and Plan 2001** High priority trails address needs to: connect residential areas with community amenities; connect with schools; parks, national forest trailheads and some commercial districts are included; serving both recreation and transportation; enhance the safety of non-motorized travel through communities; and connect with existing trails. Long-distance routes crossing the county's borders that may not be realized for many years are also included. The proposed highest-priority trails are concentrated in and around the communities of Gallatin County: The trail linking Belgrade and Bozeman; Valley Center Corridor; Bozeman – "M" Corridor; Springhill – Bozeman Corridor; Four Corners – Bozeman Corridor; Four Corners – Gallatin Gateway Corridor; Three Forks – Trident Corridor; extension of a recreational trail from Bozeman south to Gallatin Gateway.

Draft Revised Plan Components	Gallatin County, MT 2003 Growth Policy Components
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills, and grasslands.	**Goal. Conserve Scenic Resources and Views** **Policies** Encourage development to document efforts to conserve scenic resources and views; considering ridge tops and hillsides, signage, off-premise advertising, telecommunication towers, and light pollution and landscaped buffers.
	Not applicable: Open Space Residential; Commercial and Industrial, Light; Commercial and Industrial, Heavy; Local Services, Agriculture

Park County, Montana

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits.	**Growth and Development** **Objective 16.5:** Identify areas of critical agricultural importance and implement mechanisms in these areas that support the ability of agricultural landowners to continued operations.
Watershed and Aquatics **GDL-05.** New and reconstructed water withdrawal systems (such as new stream diversions and associated ditches) should be screened to prevent fish and aquatic biota, such as amphibians, capture and water drafting/pumping sites shall also be screened and located away from native fish spawning locations. **STD-01.** Management activities in source water protection areas shall be consistent with applicable source water protection requirements and goals. Short-term effects from activities in source water protection areas may be acceptable when those activities support long-term benefits to source water protection areas and aquatic resources. **STD-02.** New, replacement, and reconstructed stream crossing sites (culverts, bridges, and other stream crossings) in fish-bearing streams shall accommodate at least the 100-year flow (unless site conditions or lack of resource values preclude installation of a structure that size) and allow the passage of fish. **GDL-04.** In order to restore watersheds, management activities in watersheds with approved total maximum daily loads should be designed to comply with the total maximum daily load allocations. Projects that produce short-term sediment or nutrient increases should result in a long-term decrease in sediment or	**Water Availability and Water Quality** **Goal 8**: Be prepared to make decisions on how to manage water resources: **Objective 8.1**: Build on recent efforts to establish baseline water quantity and quality information for the major watersheds in Park County. **Action 8.1.1:** Coordinate with Department of Natural Resources and Conservation, U.S. Geological Survey, The Yellowstone River Council, and the Montana Bureau of Mines and Geology Groundwater Investigation Program to identify and assemble available studies on groundwater and surface water. **Action 8.1.2:** Coordinate with Department of Natural Resources and Conservation, U.S. Geological Survey, The Yellowstone River Council, and the Montana Bureau of Mines and Geology Groundwater Investigation Program to conduct studies in areas of Park County where studies have not been completed **Objective 8.2:** Conduct water resource studies that analyze sources, long term availability; potential conflicts and drought, and include recommendations for management.

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
nutrient delivery and/or sediment or nutrient yield in the stream system which would be in compliance with total maximum daily loads.	**Action 8.2.1**: Coordinate with Department of Natural Resources and Conservation to produce a scientifically based document identifying Park County's long term water requirements **Action 8.2.2**: Based on baseline data and longer term water requirements, work the Department of Natural Resources and Conservation to prepare a water management plan that provides recommendations to Count Commissioners on how to manage county resources impacted by water, and for irrigators who use water for their livelihoods. **Action 8.2.3:** Create a drought management plan
Fire and Fuels **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an essential ecological process. **Goal 2.** The Custer Gallatin National Forest coordinates fire management actions with state, local, tribal, and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration. **STD-01.** All wildfires shall have a management response that considers risk to life and safety, taking into account the costs and effects to resources and values at risk. **GDL-01.** In order to meet multiple resource desired conditions, the forest should use wildland fires forestwide where and when conditions permit. **GDL-02.** To reduce the negative impacts of wildfires to values at risk, improve fire control opportunities, or decrease risk to fire personnel and the public, fuels treatments should be designed to remove or rearrange the live and dead vegetation as necessary to reduce fire intensity. **GDL-03.** In order to minimize natural resource damage, minimum impact suppression tactics should be utilized in sensitive areas, such as designated wilderness, wilderness study areas, recommended wilderness, designated and eligible wild and scenic river corridors, research natural areas, special areas, riparian management zones, sensitive habitat of at-risk species, cultural and historic sites, national recreation, scenic and historic trails, the Continental Divide National Scenic Trail corridor, and the Beartooth Scenic Byway. Exceptions to this guideline may occur when a more direct attack is needed to protect life or adjacent property or mitigate risks to responders.	**Intergovernmental Coordination** **Goal 3**: Support efforts of fire manager to manage fuels on public and private lands **Objective 3.1:** Implement the Community Wildfire Protection Plan **Action 3.1.1** Meet with fire management officials to identify parties responsible for implementing the actions of the wildfire protection plan. **Action 3.1.2:** Take action to implement the tasks identifies as being responsible for the county. **Objective 3.2:** Increase support of rural fire districts **Action 3.2.1**: Assist rural fire districts in developing a consolidated targeted recruitment program to increase volunteers **Action 3.2.2**: Provide assistance in researching grant sources and writing grants for funding equipment, training, and implementing projects.

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
Wildlife **DC-5.** Landscape patterns throughout the forest provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC-6.** Habitat conditions within the Custer Gallatin near boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries. **GDL-1.** In order to maintain or restore habitat connectivity for wildlife, management actions should not create movement barriers to wide-ranging species such as medium to large carnivores and wild ungulates, except where necessary to provide for human and wildlife safety. **GDL-2.** Vegetation management activities in a key linkage area should include design features to restore, maintain or enhance habitat connectivity for long distance range shifts of wide ranging wildlife species. **GDL-3.** New permanent facilities/structures for administrative or public use should not be constructed within key linkage areas unless needed to address on-going or imminent resource concerns within the key linkage area, including but not limited to, degradation of wildlife habitat connectivity. Any new permanent facilities/structures and relocation of existing facilities within key linkage areas should be designed and located so that wildlife movement patterns are not permanently disrupted. **GDL-4.** In order to maintain habitat quality and/or limit disturbance effects on wildlife movement patterns, a key linkage area should be free of sustained substantial disturbance for at least four years out of every ten year period, including at least two consecutive years of no sustained substantial disturbance. Sustained substantial disturbance is the use of heavy equipment or low-level helicopter flights for vegetation management actions for a total of more than 30 days throughout an entire key linkage area in a calendar year. **Big Game Goal 1**. The Forest Service engages in cooperation and collaboration with State wildlife management agencies, Tribal governments and other interested partners in the development of management strategies, including monitoring programs, to maintain suitable habitat conditions and big game populations in numbers and distribution that allow for sustainable, high quality hunting experiences on National Forest System lands.	**Intergovernmental Coordination** **Goal 2:** Partner with State and Federal agencies to reduce human-wildlife conflicts. **Objective 2.**1: Develop and implement a shared strategy with wildlife management agencies and community organizations to educate the public on living with wildlife. **Objective 2.2:** Identify critical wildlife corridors for development, infrastructure and conservation planning. **Action 2.1.1:** Assist with the distribution of materials on living with wildlife developed or distributed by State and Federal wildlife officials. **Action 2.2.1:** Use expertise, information and data from State and Federal wildlife managers to identify and map corridors. **Action 2.2.2**: Incorporate wildlife corridor mapping into the Park County Atlas **Action 2.2.3:** Encourage Montana Department of Transportation to include mitigation of wildlife corridors in planning and implementing highway projects.

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
Social and Economic Sustainability **Goal 1.** The Forest Service engages with local agencies, partner organizations, and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Growth and Development** **Objective 17.2:** Recognize the value of Park County's unique natural amenities and recreational opportunities as competitive strengths, attracting talent and companies that diversify and strengthen the economy.
Infrastructure, Roads and Trails **DC-1**. The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **DC-2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines). **DC-3.** Invasive species are infrequent or non-existent along forest roads, trails or around facilities. **DC-4.** Roads and bridges provide for the health and safety of each user, are cost effective, preserve the integrity of the road or trail, and reasonably protect the natural, cultural, and aesthetic values within the roadway or trailway. **DC-5.** The trail system accommodates current and reasonably foreseeable recreational demands and ability of the Forest Service to provide sustainable maintenance through volunteer, partnership, or agency resources. **Goal 1**. The road system is part of a broader public road system that is under the jurisdiction of multiple road agencies. Road agencies cooperate routinely to reduce conflicts, ensure cost effective partnering, and provide a seamless transportation system to the public and reduces the overall footprint of the entire transportation system. **Goal 2.** Road maintenance is shared with users on a commensurate basis. Residential subdivisions, commercial enterprises, utility companies, etc., using a	**Infrastructure** **Goal 11:** Provide for a safe and efficient county road network **Objective 11.1:** Update the subdivision regulations to ensure new subdivision pay a proportional share of their impact when upgrading county roads to meet county road standards. **Action 11.1.1**: Research and present options to the Planning and Development Board on how other counties in Montana use subdivision regulations to require improvements to off-site county roads that are directly attributable to the impacts of a proposed subdivision. **Action 11.1.2:** Update the design and improvement standards in the subdivision regulations to include a procedure for making improvements to off-site county roads based on the direct proportional impact of a proposed subdivision. **Objective 11.3**: Prioritize the use of rural special improvement districts to upgrade substandard county roads in areas that are already developed. **Objective 11.4**: Continue to secure Federal funding sources to upgrade county roads and bridges that provide access to recreation areas on public lands.

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
National Forest System road share in the cost of road maintenance based generally on type and timing of use.	
Recreation **DC-1.** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area. **DC-2.** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation. **DC-3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **DC-4.** Existing developed facilities, roads, and trails for both summer and winter recreation activities are adaptable for new recreation demands. **DC-5.** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species.	**Growth and Development** **Objective 17.2:** Recognize the value of Park County's unique natural amenities and recreational opportunities as competitive strengths, attracting talent and companies that diversify and strengthen the economy.
Land Status and Ownership, Access, and Land Uses **Goal-1.** The Forest Service works with local county road authorities to grant public road easements (under the Forest Road and Trails Act) for routes that serve predominantly non-National Forest System purposes.	**Infrastructure** **Objective 11.4:** Continue to secure Federal funding sources to upgrade county roads and bridges that provide access to recreation areas on public lands.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Intergovernmental Coordination** **Objective 5.1: Establish Cooperating Agency status with the U.S. Forest Service and National Park Service.** **Action 5.1.**1: Reach out to the U.S. Forest Service and National Park Service and determine the specific requirements to achieve Cooperating Agency status. **Action 5.1.2**: Complete the requirements to achieve Cooperating Agency status.

Draft Revised Plan Components	Park County, MT 2017 Growth Policy Components
	Not applicable: Housing

Prepared by Michael Inman, Director, Park County Montana Planning Department

Meagher County, Montana

Draft Revised Plan Components	Meagher County, MT 2014 Growth Policy Components
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.	**2003 Development Policy F.** Protect the rivers and streams, floodplains, riparian areas and wetlands in the county.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.	**Economic Development.** **Promote Tourism.** Meagher County and White Sulfur Springs have a rich history and many natural resources that should be used to promote tourism in the area.
Cultural and Historic Resources **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Economic Development.** **Promote Tourism.** Meagher County and White Sulfur Springs have a rich history and many natural resources that should be used to promote tourism in the area.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Interjurisdictional Collaboration** Collaboration needs to be improved with the Federal government pertaining to natural resource uses for timber and environmental regulations that affect the county and city economy and population.

Draft Revised Plan Components	Meagher County, MT 2014 Growth Policy Components
	Not applicable: Support Opening New Mine, Sustainable Development, Improve Built Environment and Land Use (Adopt Building Codes, Implement Land Use Codes), Cluster Development (Residential Clusters, Commercial Clusters)

Sweet Grass County, Montana

Draft Revised Plan Components	Sweet Grass County, MT 2014 Growth Policy Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Watershed and Aquatics** **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Wildlife** **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for vegetation, thereby providing wildlife habitat for a variety of life	**Environment and Wildlife Resources** **Goal 1.** To maintain, preserve, and enhance the environmental, ecological, and historical qualities of Sweet Grass County. **Goal 2.** To maintain or mitigate critical wildlife habitat and to consider the effects humans have on wildlife. **Goal 3.** Review subdivisions for their effects on humans and wildlife **Objective a)** Protect areas of environmental significance such as wetlands, floodplains and critical wildlife habitat. **Objective b)** Improve the visual appearance, attractiveness to business, or quality of life in our communities. **Objective c)** Maintain high quality groundwater, surface water, air and general environment qualities. **Objective d)** Encourage responsible livestock grazing practices as an essential process in maintaining healthy grasslands. **Policy (e):** Designation of any resource areas, wilderness, wild and scenic rivers or national monuments must be done in consultation and coordination with Sweet Grass County and its residents, to the maximum extent allowed by law. **Growth Policy Recommendations for Wildlife include:** **e)** Wildlife management plans should maintain healthy balanced wildlife populations consistent with the needs of domestic livestock and the rights of private property owners; **g)** Collaborate and coordinate with federal and state agencies on planning and regulations affecting wildlife to ensure coordination with the Growth Policy; **m)** Utilize the county's right under state and federal law to be involved in all local decisions regarding predators, game species, and endangered species. **n)** Develop suggested wildlife impact mitigation measures for critical wildlife habitat.

Draft Revised Plan Components	Sweet Grass County, MT 2014 Growth Policy Components
cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **Goal 2**. The Forest Service coordinates management actions with other federal, state and local agencies, tribes, and adjacent land owners. Opportunities to manage wildlife habitat and provide for connectivity are expanded through coordination and collaboration along and across administrative boundaries. **Cultural and Historic Resources** **DC-1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **Permitted Livestock Grazing** **DC-1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions. **Scenery** **DC-1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands. **Social and Economic Sustainability** **Goal 1** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function. **Goal 4.** A coordinated (internally and externally) invasive species management, awareness, and education approach supports: a) Improved invasive species awareness. b) Opportunities for cooperators, organizations and members of the public to adopt areas on the forest for invasive species management are provided. This would include survey, inventory, monitoring, and treatment. c)	**p)** Support wildlife management techniques that minimize conflicts with agricultural operations **Growth Policy Recommendations on Weeds** **a)** Contain the existing infestation of weeds with the goal of control and strive to prevent the infestation of new weeds. **b)** Monitor road, utilities, and highway construction activities to ensure all is being done to prevent new infestation and the spread of existing weeds. **d)** Coordinate weed control and education efforts with other governmental agencies.

Draft Revised Plan Components	Sweet Grass County, MT 2014 Growth Policy Components
Development and distribution of invasive species education materials at high use areas and Forest Service offices. **Permitted Livestock Grazing** **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	
Fire and Fuels **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire. **Land Status and Ownership, Access, and Land Uses** **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands.	**Land Use** **Goal 2.**To protect, encourage and support the agricultural base of the county and its agricultural resources, and to achieve the most appropriate use of land within the County so sufficient areas are provided for existing and future residential, commercial and industrial needs. **Objective f)** Continue evaluation of the potential for fire and wildland fire in the county and measures to mitigate that fire potential. Protect private property rights and encourage no net gain of State or Federal land.
Social and Economic Sustainability **DC 1.** Key forest resources, products, services, and opportunities including: clean air, clean water and aquatic ecosystems, terrestrial ecosystems, education and volunteer programs, flood control, infrastructure, forest products, mineral and energy resources, historic, cultural, tribal or archeological sites, geologic features, grazing, scenery, recreation, spiritual inspiration, opportunities to experience peace, quiet and solitude in nature, free roaming wildlife and designated areas (including their intrinsic values) contribute to the well-being, quality of life, mental, physical, and spiritual health and safety of the public. **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Goal 1.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. **Energy, Minerals and Geologic Areas of Interest**	**Natural Resources** **Goal.** To maintain a policy of wise use of natural resources, including a focus on sustainability, economic growth, conservation strategies and involvement in land use planning decisions at the local, State and Federal level. **Objective a)** To ensure that Federal And State agencies proposing or implementing natural resource policy, uses or restrictions and administration of Federal and State lands within Sweet Grass County require the involvement and participation of local government and Sweet Grass County citizens in the development and implementation of actions that affect the county's tax base, local economy, private property rights, self-determination and the use, and protection of agricultural resources. **Objective b)** To balance growth and development with protection of agricultural land and heritage, as well as water quality, tourism, and quality of life **Objective c)** To recognize Sweet Grass County has a heritage of agriculture, mineral activities, timber, and tourism that provide economic benefits and that the administration of natural resources should ensure the utilization and availability of the natural resources, in conjunction with sustainable preservation of the resource. **Policy g**): Enhance the economic impact of the use and production of natural resources through value added enterprises. **Policy h):** Encourage and plan for responsible, orderly energy development, including alternative energy.

Draft Revised Plan Components	Sweet Grass County, MT 2014 Growth Policy Components
DC 1. Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) is available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **Timber** **DC 3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **Wildlife** **DC 3.** There is low or no risk of disease transmission between domestic animals and wildlife.	**Policy j):** Support proper forest management, including timber harvest. **Policy (i)**: Support agricultural producers in their efforts to maintain brucellosis-free status, and keep Sweet Grass County out of any Designated Surveillance Area (DSA) for brucellosis.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Energy, Minerals and Geologic Areas of Interest** **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) is available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **Timber** **DC 3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies.	**Economic Development** **Goal.** To stabilize existing employment areas and pursue diverse employment opportunities in order to achieve full employment within the available county labor force. **Objective a)** Encourage value adding by manufacturing of finished products from local raw material. **Objective b)** Encourage and plan for responsible energy exploration and development, including alternative energy **Objective c)** To encourage and support economic development that would create more jobs, enhance community commerce, and improve the quality of life that residents now enjoy. **Objective d)** Strengthen and broaden the economy of Sweet Grass County in order to reduce the adverse effects of a downturn in a specific economic sector. **Objective e)** Explore the capacity for public land resources to provide more economic return for rural economies. **Objective f)** Encourage economic diversity to avoid over-reliance on any industry segment.

Draft Revised Plan Components	Sweet Grass County, MT 2014 Growth Policy Components
Infrastructure, Roads and Trails **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Public infrastructure and Services** **Goal 2.** Provide county infrastructure which satisfies transportation, utility and solid waste disposal needs of county residents, businesses/industries and visitors in an effective and efficient manner. **Objective c)** Improve county road systems to efficiently serve transportation needs within the county.
	NOTE: Sweet Grass County's Growth Policy emphasizes multiple use of federal lands (including but not limited to agricultural uses, livestock grazing, timber harvest, mineral development, outfitting and recreational use). While goals and objectives provide a vision, the details will determine the actual effect on the county and whether a particular alternative under the Custer Gallatin Forest Plan may be incompatible with the County Growth Policy.

Prepared with Sweet Grass County, Montana

Stillwater County, Montana

Draft Revised Plan Components	Stillwater County, MT 2007` Growth Policy Components
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Mining and Natural Resources Development Impacts and Managed Growth** **Goal 3.9.1.2.** Identify the appropriate entity(ies) having authority to deal with the responsible development of any natural resource proposed for development within the county, and monitor any such development to ensure that negative impacts are minimized
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.	**County Roads and Bridges** **Goal 3.4.1.1.** Provide the safest and most cost effective surface transportation system possible to the taxpayers and traveling public

Draft Revised Plan Components	Stillwater County, MT 2007` Growth Policy Components
DC 2. The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Other County Issues** **Goal 3.11.1.2.** The county should be active in the legislative process and intergovernmental relations among Federal, State, and local government. **Objective 3.11.2.5.** Encourage cooperation among Federal, State, and local governments on intergovernmental decisions or actions.
	Not applicable: Law enforcement and emergency services, solid waste and recycling, subdivisions, affordable housing and manufactured homes, land use conflicts and development regulation, town sites and public facilities, economic development.

Carbon County, Montana

Draft Revised Plan Components	Carbon County, MT 2015 Growth Policy Components
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-8.** Municipal watersheds provide long-term predictable amounts of clean drinking water for those downstream communities that derive their principal water from them. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that	**Goal 2. Water Resources Management.** **Objective 2.5:** Assist in protecting public and private drinking water supplies due to growth causing increased pressure on scarce drinking water resources. **Objective 2.6:** Continue to administer the floodplain program for unincorporated areas of Carbon County.

Draft Revised Plan Components	Carbon County, MT 2015 Growth Policy Components
would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels.	
Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Goal 1. Land Use and Development** **Objective 1.3.6.** Continue to fund and support an active county weed control program which includes both education and regulation. Streamline the process to treat noxious weeds and recover costs when landowners do not treat their weeds. Continue to require weed inspections and bonding as necessary for any land use change and new development with fees to cover staff time for inspections.
Fire **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an ecological process.	**Goal 4. Cooperation with Other Governments** **Objective 4.4.B.** Continue to work with the Forest Service to educate the public about dangers and challenges associated with the continued growth and building within the wildland urban interface. Support rural departments applying for State and Federal grant monies for staffing, training, and equipment. Update the Community Wildfire Protection Plan as necessary.
Wildlife **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Goal 1. Land and Community Development.** **Objective h.** Encourage the voluntary preservation of open space and wildlife habitat in the county.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **DC 4.** High quality terrestrial and aquatic habitats and opportunities for fishing, trapping and hunting exist on the forest and contribute to local economies as	**Goal 3. Financial Management and Public Services** **Objective 3.8:** Continue to support current economic drivers such as agriculture, tourism and natural resource development. **Goal 5. Natural and Environmental Resources** Develop the county's natural resources balancing economic development with environmental responsibility. **Objective 5.1:** Leverage natural resource development to promote economic and community development. **Objective 5.1.B.** Promote renewable resource development.

Draft Revised Plan Components	Carbon County, MT 2015 Growth Policy Components
well as the well-being, quality of life, mental, physical, and spiritual health of the public. Multiple Desired Conditions, Goals, and other plan components protect natural resources.	
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Goal 1. Land and Community Development** **Objective 1.5.B.** Allow the Planning Board more involvement when significant archaeological or historical properties are affected a development, and when recommending impact mitigation to significant sites (listed on the National Register of Historic Places or determined eligible for listing).
Infrastructure, Roads and Trails **Goal 1**. The road system is part of a broader public road system that is under the jurisdiction of multiple road agencies. Road agencies cooperate routinely to reduce conflicts, ensure cost effective partnering, and provide a seamless transportation system to the public and reduces the overall footprint of the entire transportation system.	**Goal 4. Cooperation with Other Governments** **Objective 4.3:** Continue to provide cost-effective services to residents for road maintenance and construction. **Objective 4.3.A**. Communicate with MDT, the Forest Service, the Bureau of Land Management, and adjacent counties to discuss road projects, coordinate schedules, and look for efficiencies through working cooperatively.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Goal 1. Land and Community Development** **Objective 1.5.A.** Request information and briefings, and actively respond to requests for comment by State and Federal agencies proposing projects such as land exchanges, and large scale mineral or recreation development in the county. **Goal 4. Cooperation with Local Governments** **Objective 4.4**: Promote the public health and safety through cooperation with the State and Federal governments.

Rosebud County, Montana

Draft Revised Plan Components	Rosebud County, MT 2013 Growth Policy Components
Air Quality **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Natural Resources Goal.** Monitor changes in condition and development of all natural resources. **Objective**. Encourage acceptable air quality standards.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels.	**Natural Resources Goal.** Monitor changes in condition and development of all natural resources. **Objective**. Support efficient water quality and quantity activities.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.	**Economy Goal.** Monitor growth and development opportunities and pitfalls. **Objectives.** Encourage stable economic development. Encourage value-added prospects for agriculture and timber. Encourage economic diversity.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.	**Economy Goal.** **Objective.** Encourage tourism, historical and heritage promotion projects**.**

Draft Revised Plan Components	Rosebud County, MT 2013 Growth Policy Components
DC 3. Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	
Energy and Minerals **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability, and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) are available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity.	**Natural Resources Goal.** **Objectives** Support efficient and responsible mineral development activities. Protect and maintain sufficient sand and gravel resources. Develop standards for renewable energy development.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Natural Resources Goal.** **Objective**. Develop public/private partnerships to guide resource development.
	Not applicable: Land use, population and demographics, housing and development, local services, public facilities.

Powder River County, Montana

Draft Revised Plan Components	Powder River County, MT 2012 Growth Policy Components
Air Quality, Soils, Water, Vegetation, Wildlife Multiple desired conditions, goals, and other plan components protect natural resources.	**Natural Resources Goal.** Minimize negative environmental effects from increase in local and regional natural resource development and housing development.

Watershed and Aquatics. Multiple Desired Conditions, including: **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.	**Land Use Policy Recommendations** **Natural Resources 1.** Preserve water resources throughout the county by adopting buffer standards for development along rivers and streams as well as around well-heads and groundwater supply facilities. **Natural Resources 2.** Continue implementing water severance policy. **Floodplain 1**. Enforce floodplain regulations so future development limits damage to people and property.
Fire and Fuels **Goal 2.** The Custer Gallatin National Forest coordinates fire management actions with State, local, and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.	**Local Services** **Goal 2.** Improve wildfire suppression activities. **Objective**. Enhance local, State, and Federal dialogue regarding fire suppression policies and opportunities.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, and infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **DC 4.** High quality terrestrial and aquatic habitats and opportunities for fishing, trapping and hunting exist on the forest and contribute to local economies as well as the well-being, quality of life, mental, physical and spiritual health of the public.	**Land Use Goal.** Plan for compatible land uses throughout the county while preserving multiple uses for existing and future agricultural, ranching, natural resource extraction, forestry, and recreational land. **Land Use Policy Recommendations** **Natural Resources 6.** Encourage tourism related businesses that promote the county's natural resources, yet do not interfere with established land uses while (sic). **Economic Goal 2.** Develop and enhance the agriculture industry. **Objective:** Work with the Forest Service to enhance ways to increase agricultural-based opportunities in Custer National Forest. **Economic Goal 3.** Support local natural resource development. **Economic Goal 4.** Enhance local tourism.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions. **Social and Economic Sustainability** **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Land Use Policy Recommendations** **Agriculture and Farmsteads 1.** Continue to promote the "multiple use" concept of allowing farmers and ranchers to use Federal and State land for farming, ranching and agricultural activities. In addition, no changes in Federal or State land use should be allowed without the county receiving adequate notice having the opportunity to comment on any proposed plan or land use activity. Powder River County requests all State and Federal agencies to coordinate with the county growth plan. **Economic Objective:** Work with the Forest Service to enhance ways to increase agricultural-based opportunities in Custer National Forest. **Intergovernmental Coordination 2.** Continue to require that Powder River County shall be notified of all state, interstate and Federal actions that have any impact on water resources. Official notification must be acknowledged in writing by the commissioners and that they understand the proposed actions.

	In addition, actions regarding wild and scenic river designations shall be coordinated with the commissioners and the growth policy. **Intergovernmental Coordination 3.** Continue to assist Federal and State agencies in the planning and management of Powder River's natural, cultural and economic resources. **Natural Resources Goal:** Increase local control and awareness of programs that affect Powder River County land. **Objective:** Continue dialogue between community members, Forest Service, Bureau of Land Management, Department of Natural Resources, and Fish Wildlife and Parks.
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Land Use Policy Recommendations** **Land Development 2**. Support development opportunities that provide for the long-term availability and sustainable development of the county's mineral resources.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands.	**Land Use Policy Recommendations** **Agriculture and Farmsteads 2.** Continue implementing the "no net gain" policy regarding public land sales or exchanges. Goal is not net loss of private lands. **Intergovernmental Coordination 4.** Continue to support the design and development of all Federal and State land disposals, including land adjustments and exchanges; be performed to the benefit of Powder River County residents.
	Not applicable: Population and demographics, housing and development, public facilities

Carter County, Montana

Draft Revised Plan Components	Carter County, MT Growth Policy Components
Air Quality **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Goal 4. Natural Resources.** Encourage land uses that are appropriate on the lands for which they are proposed and promote land use, which provides an optimum, long-term economic benefit, while maintaining a balance between the social, agricultural, economic, and aesthetic needs of the public. **Policy f.** Consult with state agencies on new developments to make sure they are in conformance with air quality and other environmental standards.

Draft Revised Plan Components	Carter County, MT Growth Policy Components
Soils **Soils DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized.	**Goal 4. Natural Resources.** **Policy b**. Restrict development of lands that have severe physical limitations, due to steepness, instability, floodplains, etc.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-12** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Soils** **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized.	**Goal 1. Land and Community Development.** Promote land use changes and development that is compatible with existing land uses and minimize negative impacts on existing and future land uses **Policy a.** Discourage land development in floodplain areas. All residential structures are to be located at least 100 feet outside a designated 100 year floodplain, or 100 feet from a stream or lake edge in undesignated areas. **Goal 4. Natural Resources.** **Objective c.** Encourage maintenance of the quality and quantity of surface and ground water for both consumption and non-consumption use. **Policy b**. Restrict development of lands that have severe physical limitations, due to steepness, instability, floodplains, etc.
Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Goal 1. Land and Community Development.** **Policy h.** Continue to fund and support the county weed control program which includes education and regulation. Streamline the process to treat noxious weeds and recover costs when the landowner does not treat their weeds. Require weed inspections and bonding as necessary for any land use change and new development with fees to cover staff time and inspections. **Goal 4. Natural Resources.** **Policy c.** Require weed control measures and prompt revegetation efforts of land disturbances associated with land development. **Policy d.** Encourage and support effective noxious weed control measures throughout the county, including Federal and State lands.

Draft Revised Plan Components	Carter County, MT Growth Policy Components
Wildlife **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Goal 1. Land and Community Development.** **Objective h.** Encourage the voluntary preservation of open space and wildlife habitat in the county.
Social and Economic Sustainability **DC 1.** Key forest resources, products, services, and opportunities including: clean air, clean water and aquatic ecosystems, terrestrial ecosystems, education and volunteer programs, flood control, infrastructure, forest products, mineral and energy resources, historic, cultural, tribal or archeological sites, geologic features, grazing, scenery, recreation, spiritual inspiration, opportunities to experience peace, quiet and solitude in nature, free roaming wildlife and designated areas (including their intrinsic values) contribute to the well-being, quality of life, mental, physical and spiritual health and safety of the public. **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **DC 4.** High quality terrestrial and aquatic habitats and opportunities for fishing, trapping and hunting exist on the forest and contribute to local economies as well as the well-being, quality of life, mental, physical, and spiritual health of the public.	**Goal 2. Economic Development.** Encourage economic growth in Carter County that is a benefit to all county residents, especially in the areas of land use, services, and public infrastructure. **Goal 4. Natural Resources.** **Objective b.** Encourage the protection and proper management of non-commercial lands that enhance economic wildlife, scenic, recreational, and economic opportunities of Carter County. **Policy a.** Develop long term plans, which promote economic benefits derived from publicly owned lands, while protecting the resources.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Goal 2. Economic Development** **Objective a.** Encourage development that will respect historic, cultural, and lifestyle values in the county. **Goal 5. Public Facilities** **Policy e**. Promote preserving and maintaining facilities of historic interest in accordance with the State guidelines for historic places **Policy f.** Encourage the retention of public buildings that have historical significance and can be feasibly repaired, such as the Carter County Courthouse.

Draft Revised Plan Components	Carter County, MT Growth Policy Components
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Goal 2. Economic Development.** **Objective e.** Encourage, promote, and assist energy development and mining companies who are in the process of submitting a permit and who will follow State and Federal laws, rules, and regulations to locate in Carter County.
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Goal 3. Transportation and Traffic.** Develop a transportation plan that will benefit existing and future land development in the county that is sensitive to the cost of maintenance.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. Multiple additional goals to coordinate with other agencies and partners.	**Goal 1. Land and Community Development** **Policy e.** Request information and briefings, and actively respond to requests for comment by State and Federal agencies proposing projects such as land exchanges, and large scale mineral or recreation development in the county. **Goal 4. Natural Resources.** **Objective e.** Encourage and assist with the implementation of State and Federal management plans that recognize many natural resources as long as they are consistent with the Carter County Comprehensive Plan and Growth Policy and the County Natural Use Resource Policy. **Policy e.** Coordinate with agencies that manage public lands on land planning issues and actively participate in the planning efforts.

Harding County, South Dakota

Draft Revised Plan Components	Harding County, SD 2012 County Comprehensive Plan Components
Air Quality, Soils, Water, Vegetation, Wildlife Multiple desired conditions, goals, and other plan components protect natural resources.	**Goal:** Ensure that policies and regulations reduce potential land use conflicts and protect the county's natural resources without creating undue hardships on property owners **Objective.** Protect the county's natural resources.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.	**Goal:** Promote a diverse economic development strategy that will enhance the community.
Infrastructure, Roads and Trails **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Goal:** Promote a diverse economic development strategy that will enhance the community. **Objective.** Ensure safe and efficient transportation system connections throughout the county and to neighboring communities.
Recreation **DC 2.** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation.	**Goal:** Maintain the strong sense of community and high quality of life in Harding County. **Activity:** Enhance public recreation opportunities and facilities throughout the community for all users.

City of West Yellowstone, Montana

Draft Revised Plan Components	West Yellowstone, MT 2017 Growth Policy Components
Fire and Fuels **DC-3.** There are minimal detrimental impacts to values at risk from wildland fire. **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners, and permittees who are	**Goal 14– Protect Lives and Property from Wildfire** **Objective 14.1** Reduce wildlife risk**.** **Action 14.1.1** Carry out wildland fuels treatments on the southern and western borders of town.

Draft Revised Plan Components	West Yellowstone, MT 2017 Growth Policy Components
invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an ecological process.	
Recreation Emphasis Areas; Hebgen Winter and Hebgen Lakeshore **DC-1.** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to changing recreation desires. Local communities can readily access these areas for a variety of motorized and non-motorized experiences. **DC 2.** Trail systems connect communities to recreation emphasis areas.	**Goal 12– Enhance Recreation Opportunities in and Around West Yellowstone** **Objective 12.1** Develop safe and connected non-motorized transportation options and recreation opportunities. **Action 12.1.2** Explore a rails-to-trails conversion on the old Oregon Short Line railroad bed from West Yellowstone to Reas Pass.
Recreation Emphasis Areas; Hebgen Winter and Hebgen Lakeshore **DC-1.** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to changing recreation desires. Local communities can readily access these areas for a variety of motorized and non-motorized experiences. **DC 2.** Trail systems connect communities to recreation emphasis areas.	**Goal 13. Ensure Development of the 80 Acres Supports a High Quality of Life for Residents** **Objective 3.1** Provide open space and recreational opportunities. **Action 3.1.2** Develop a trail system that provides internal connectivity and connections to nearby national forest and national park lands.
	Not applicable: Housing affordability and availability, short-term commercial rentals, developing the 80 acres, town appearance, zoning in old town, the economy, water, and sewer.

State Plans

The compatibility review considers the Montana and South Dakota Forest Action Plans, Wildlife Action Plan, and Statewide Comprehensive Outdoor Recreation Plans.

Montana Forest Action Plan

State forest action plans are developed to satisfy the requirements of the 2008 Farm Bill; this bill requires that each state prepare a statewide forest resource assessment and strategy to qualify for funding through USDA Forest Service state and private forestry grants. In 2010, Montana developed a Statewide Assessment of Forest Resources (SAFR), a comprehensive analysis of the conditions, trends, threats, and opportunities facing their forests. The Montana Forest Action Plan was subsequently developed as the implementation component of the Assessment. The

Montana Forest Action Plan is a strategic documents designed to highlight the major issues in each state, identify priority actions and define the most effective role for state governments in sustaining benefits from state and private forests.

The original forest action plan identified five focus areas. The 2017 revision of the forest action plan amends the original focus areas to align with the evolution of the Forestry Assistance Bureau, Forestry Division, and general forestry context in Montana.

Draft Revised Plan Components	Montana 2017 Forest Action Plan Components
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural, and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Timber** **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **DC 3.** Timber harvest contributes to maintaining regional timber harvesting and processing infrastructure.	**Focus Area: Forest Products and Industry Retention.** **Strategy:** Retain and bolster Montana's forest industry so that forests can be managed in an ecologically and economically practical manner.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Focus Area: Federal Forest Management** **Strategy:** Increase the amount of forest restoration on Federal lands through partnerships with government agencies and Montana communities.
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations, and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Focus Area: Stewardship of Wildland, Rural and Urban Landscapes** **Strategy:** Guide forest owners, managers, and communities in implementing stewardship objectives and promote the benefits of engaged forest stewardship.

Draft Revised Plan Components	Montana 2017 Forest Action Plan Components
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Focus Area: Capacity, Collaboration and Partnerships** **Strategy:** Increase the capability of landowners, natural resource managers and communities to meet management objectives by providing financial, technical, and logistical support.
Timber **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **Vegetation** Multiple **Desired Conditions** for forested and other vegetation types. **Air Quality, Soils, Water, Vegetation, Wildlife, Recreation** Multiple desired conditions, goals, and other plan components protect natural resources and recreation.	**Focus Area: Forest Restoration, Ecology and Function** **Strategy:** Promote responsible, active forest management that ensures ecological conditions meet the needs of future generations for clean water, wildlife habitat, sustainable timber supply, and recreation opportunities.

Montana State Wildlife Action Plan

The State Wildlife Action Plan (SWAP) was developed to meet a Congressional stipulation for State wildlife grant funding. The State Wildlife Action Plan identifies community types of greatest conservation need, focal areas, species of greatest conservation need, and species of greatest inventory need. Because the Forest Service is a land management agency, and the Forest Service definition of a species of conservation concern is different from the State's definition of a species of greatest conservation need; this compatibility review focuses on the community types of greatest conservation need.

Draft Revised Plan Components	Montana 2015 State Wildlife Action Plan Components
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations, and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. **Watershed and Aquatics** **DC-2.** Spatial connectivity is prevalent within or between watersheds. Lateral, longitudinal, vertical, and drainage network connections include floodplains, wetlands, upslope areas, headwater tributaries, and intact habitat refugia. These network connections provide unobstructed physical and chemical routes	**All streams and rivers** Strategies related to: • Collaboration and Outreach • Habitat Protection • Planning and Review • Training and Technical Assistance • Water Management • Habitat Fragmentation • Riparian/Water Body Management • Pollution/contamination of Resources • Wind Energy

Draft Revised Plan Components	Montana 2015 State Wildlife Action Plan Components
to areas critical for fulfilling life history requirements of aquatic, riparian-associated, and many upland species of flora and fauna. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **Invasive Species** **DC-1.** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the forest. Where invasive species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative species occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems.	• Non-native Species • Climate Change
Social and Economic Sustainability **Goal 3.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. **Riparian Management Zones (RMZ)** **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism. **DC-2.** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge and have an intact flow regime similar to historical flow patterns. **Terrestrial Vegetation** Multiple, detailed **desired conditions** for forested vegetation. Detailed **desired conditions** for grassland, shrubland, woodland, riparian, alpine, and sparsely vegetated plant communities. **DC-7.** Landscape-scale patch configuration and composition is conducive to ecological processes operating within their natural range of variation including	**Terrestrial Communities** • Collaboration and Outreach • Floodplain and Riparian • Open Water • Wetlands • Conifer-dominated forest and Woodland (xeric-mesic) • Deciduous Dominated forest and Woodland • Lowland/Prairie Grassland • Montane Grassland • Sagebrush Steppe & Sagebrush-Dominated Shrubland • Scrub and Dwarf Shrubland Strategies related to: • Collaboration and Outreach • Habitat Protection • Planning and Review • Habitat Fragmentation • Pollution/contamination of Resources • Land Management • Wind Energy • Recreation • Climate Change • Land Use Change

Draft Revised Plan Components	Montana 2015 State Wildlife Action Plan Components
the extent, intensity and frequency of disturbance events, to provide for habitat connectivity, wildlife movement and gene flow. **Invasive Species** **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function. **Recreation** **DC-5.** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species.	• Invasive Species

Montana Statewide Comprehensive Outdoor Recreation Plan

Montana's Statewide Comprehensive Outdoor Recreation Plan was developed to satisfy the requirements of the Land and Water Conservation Fund Act. As a requirement of the program, each state is charged with developing a plan that evaluates the demand for and the supply of outdoor recreation resources in the state. The Montana Outdoor Recreation Plan, also known as the 2014-2018 Montana Statewide Comprehensive Outdoor Recreation Plan, is the state's comprehensive plan for outdoor recreation and conservation management and planning. The purpose of the plan is to outline Montana's five-year strategy and vision for outdoor recreation management.

Draft Revised Plan Components	Montana Statewide Comprehensive Outdoor Recreation Plan 2014
Recreation General **DC 2.** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation. **Recreation Opportunity Spectrum** **DC 1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings. **Recreation – Developed Recreation Sites** **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers, to provide capacity to help meet current and future recreation demands.	**Priority:** Improve the quality of life of all Montanans **Objective** Strengthen connections between outdoor recreation, healthy lifestyles, public safety and livable communities.

Draft Revised Plan Components	Montana Statewide Comprehensive Outdoor Recreation Plan 2014
Recreation Emphasis Areas **DC 1.** Recreation emphasis areas provide sustainable recreational opportunities and settings that respond to changing recreation desires. Local communities can readily access these areas for a variety of motorized and non-motorized experiences. **DC 2.** Trail systems connect communities to recreation emphasis areas. **Land Status and Ownership, Access, and Land Uses** **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands.	
Recreation **DC 1.** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area. **DC 3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **DC 4.** Existing developed facilities, roads, and trails for both summer and winter recreation activities are adaptable for new recreation demands.	**Priority:** Sustain economic vitality **Objective:** Assess and adapt to the growing recreation and tourism demands and changing preferences of residents and visitors and promote the benefits of recreation to state and local economies.
Recreation **DC 3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **DC 4.** Existing developed facilities, roads, and trails for both summer and winter recreation activities are adaptable for new recreation demands. **Visitor Education and Interpretation** **DC 1.** Interpretation and education products enhance visitors' understanding and appreciation for the rich natural and cultural resources of the forest, and builds support for public lands. **DC 5.** Education, in a variety of mediums about forest stewardship and responsible use leads to better visitor compliance with regulations. **Roads and Trails** **DC-5.** The trail system accommodates current and reasonably foreseeable recreational demands and ability of the Forest Service to provide sustainable maintenance through volunteer, partnership, or agency resources.	**Priority:** Promote stewardship and sustainability **Objective:** Protect and enhance Montanan's natural, cultural and heritage assets by growing a responsible recreation land ethic among residents and visitors. **Objective:** Develop creative solutions to provide adequate funds for routine and preventative maintenance of current facilities, as well as expand development of facilities to meet the growing needs of residents and visitors.

Draft Revised Plan Components	Montana Statewide Comprehensive Outdoor Recreation Plan 2014
Recreation – Developed Recreation Sites **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands.	**Priority:** Enhance Agency service mission. **Objective:** Promote a seamless system of coordinated management among recreation providers and agencies at all levels.

South Dakota Statewide Forest Resource Strategy

South Dakota's forest resource strategy (Strategy) was developed to satisfy the requirements of the 2008 Farm Bill; this bill requires that each state prepare a statewide forest resource assessment and strategy to qualify for funding through USDA Forest Service state and private forestry grants. The strategy provides a comprehensive management plan for priority areas identified in the 2010 South Dakota Statewide Assessment of Forest Resources Assessment, and a long-term, comprehensive, coordinated strategy for investing State, Federal, and partner resources. The strategy details threats, strategies, existing resources, needs, and partners.

Draft Revised Plan Components	South Dakota 2010 Forest Resource Strategy Components
Watershed and Aquatics **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Riparian Management Zones** **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism.	**Water Quantity and Quality** • Educate forest landowners and forest workers about best management practices for protecting water quality during forestry operations and provide resources to implement best management practices and establish best management practices for riparian areas • Monitor existing best management practices through audits for proper implementation and effectiveness; implement recommendations that develop from periodic audits • Educate the general public on the values and benefits of managing for water quantity and water quality • Identify where riparian forests occur, where they occurred in the past, and where they are most likely to be successfully reestablished • Promote establishment of trees and shrubs for riparian buffers to protect and improve watersheds • Work with other Federal, State, and local agencies and boards to coordinate programs, initiatives, and incentives that encourage protection of water quality • Develop and implement management plans based on watersheds • Promote the management of forested areas to increase water quantity and quality
Vegetation	**Forest Health**

Draft Revised Plan Components	South Dakota 2010 Forest Resource Strategy Components
Multiple Desired Conditions for forested, old growth, grassland, shrubland, woodland, riparian, alpine, and sparse vegetation **Timber** **DC-4.** Timber harvest supports maintaining regional timber harvesting and processing infrastructure.	• Monitor forest insect and disease outbreaks • Promote utilization of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry • Collaborate with other Federal, State, and local agencies to coordinate programs and incentives that encourage and implement healthy forest restoration practices • Collaborate with and engage Federal, State, and local land managers to improve forest health and implement policies that sustain forest health management practices • Promote natural species diversity within native forest lands • Develop direct suppression and preventive management options to suppress forest insect and disease outbreaks
Fire and Fuels **DC-2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **Goal -1.** The Custer Gallatin National Forest coordinates fire management actions with state, local, tribal and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration. **Goal -2.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an essential ecological process.	**Wildfire** • Mitigate the potential for catastrophic fires – Complete, update, and implement Community Wildfire Protection Plans (CWPPs) – Increase public awareness of the need for fire prevention and fuels mitigation • Increase the training and capacity of the state's local fire suppression resources • Provide basic and advanced wildland fire training to state, local, and federal fire suppression agencies to sustain efficient suppression activities and maintain healthy forests • Manage suitable lands to achieve structurally diverse, healthy forests to develop more resilient forest landscapes • Reduce fuels by prescribed burning • Provide prescribed burning assistance to private land owners and governmental land management agencies • Provide wildfire assistance and support to other agencies
Vegetation Multiple Desired Conditions for forested, old growth, grassland, shrubland, woodland, riparian, alpine, and sparse vegetation **Carbon**	**Climate Change** • Provide guidance to help forest landowners implement forest climate adaptation and mitigation management practices based on the best available science and proven best practices

Draft Revised Plan Components	South Dakota 2010 Forest Resource Strategy Components
DC 1. Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates. **Timber** **DC-4.** Timber harvest supports maintaining regional timber harvesting and processing infrastructure.	• Promote and support practices that improve resilience of forested landscapes and restore impacted landscapes to maintain ecological functions and critical ecosystem services • Explore the carbon sequestration potential of natural forest lands, woodlots, and windbreaks • Support the forest inventory and analysis program for monitoring changes to South Dakota forests • Promote utilization of woody biomass for a broad spectrum of products to maintain and expand a viable and diverse forest products industry • Track and participate in developing federal legislation
Invasive Species **Goal -2.** Coordination and cooperation with Federal, State, and County agencies, Tribes, non-government organizations, permittees, and adjacent landowners support integrated pest management including invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities. **Goal -2.** Coordination with State and County agencies and Tribes support implementation and enforcement of regulations, permits, plans, and guidance on invasive species management across the national forest, including, but not limited to: **Goal -4.** A coordinated (internally and externally) invasive species management, awareness, and education approach…	**Weeds and Invasive Species** • Track insect, disease, and invasive species outbreaks within the state, as well as neighboring states, as they occur • Develop rehabilitation and restoration strategies for using native or desired nonnative species for restoration and rehabilitation • Implement the NISMP strategies of prevention, early detection rapid response, control and management, restoration, and organizational collaboration • Educate private landowners, the public, schoolchildren, conservation districts, and business/community leaders about the importance of forest management, planning, programs, availability of assistance, and how to implement recommendations • Explore utilization and marketing opportunities to control invasives • Work with other Federal, State, and local agencies to coordinate programs and incentives that encourage control of weeds and invasive species • Develop best management practices for treating weeds and other invasive species • Support policies that prevent exotics from entering the country • Support and encourage research for viable control options
Wildlife **DC-3.** Vegetation conditions are generally within the natural range of variation as described for vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **Goal-4.** The Forest Service engages in partnerships with State and Federal agencies, Tribes, universities, permittees and other willing entities, to conduct ecological research, improve/coordinate inventories and monitoring, and expand data/knowledge collection where needed.	**Loss or Degradation of Wildlife Habitat** • Develop a geospatial map of past, present, and potential bottomland forest types and forested habitats important to species of greatest conservation needed as identified in South Dakota's State Wildlife Action Plan • Use silviculture and prescribed burning to manage plant communities to improve wildlife habitat • Work with Game, Fish and Parks (GFP) Department to help implement strategies found in the South Dakota State Wildlife Action Plan for forested areas

Draft Revised Plan Components	South Dakota 2010 Forest Resource Strategy Components
	• Educate landowners on the value of forest management and benefits to wildlife habitat • Develop and implement management plans based on watershed or other local ecologically based boundary
Permitted livestock grazing **DC-1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions. **Goal-1.** As opportunities arise, the Forest Service works with permittees to remove or relocate existing allotment infrastructure that attract livestock use in or near aspen, woody draws, riparian areas, groundwater-dependent ecosystems and at-risk plant occurrences.	**Livestock Grazing** • Promote grazing management techniques and best management practices that are not detrimental to riparian areas, bottomland forests, and upland hardwood forests • Work with other Federal, State, and local agencies to coordinate programs and incentives that encourage grazing management • Restore forested areas degraded by grazing activities
Timber **DC-1.** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also sustaining ecosystem health. **DC-4.** Timber harvest supports maintaining regional timber harvesting and processing infrastructure.	**Underutilization of Woody Biomass** • Promote a predictable, dependable supply of raw material (woody biomass) from all ownerships to help sustain a viable forest products industry • Take an active role in the federal forest land management planning process • Encourage the proper management and use of forest resources
	Not applicable to revised forest plan **Fragmentation.** Applies to private land. **Lack of Species Diversity:** Applies to windbreaks and community forests. **Over Mature and Dying Trees** Applies to windbreaks and community forests **Loss of Urban Trees to Development:** Applies to urban areas, windbreaks and community forests Inadequate Forest Inventory Information: implementation topic

Prepared with South Dakota Department of Agriculture, Resource Conservation and Forestry Division

South Dakota Wildlife Action Plan

Similar to the Forest Service's 2012 Planning Rule approach, the 2014 South Dakota Wildlife Action Plan employs a two-tiered planning approach for terrestrial and aquatic ecosystems. 1) A coarse filter strategy as the framework under an historical range of variability-based approach to identify an estimate of the threshold level to represent each ecological community occurring under natural disturbance regimes. 2) The fine filter strategy (species of greatest conservation need) has species-specific actions, which supplements the ecosystem-based approaches.

Draft Revised Plan Components	2014 South Dakota Wildlife Action Plan
Multiple Plan Components Ecosystem approach to management, conservation of biologically unique designated and natural resource areas, and emphasis on habitats for species of greatest conservation concern, keystone species, and other relevant species.	**Goal 1:** Guide the conservation of biological diversity in South Dakota.
Monitoring Plan Provide feedback by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices.	**Goal 2:** Initiate a process to identify and monitor the status of biological diversity in South Dakota.
Monitoring Plan Report on adaptive management strategies. **Multiple Plan Components** Goals, objectives, desired conditions, guidelines and standards to meet the two-tiered approach to ecosystem management and biodiversity.	**Goal 3:** Identify challenges to maintaining or restoring biodiversity and establish a conservation action process for native ecosystem and species of concern.
Multiple Plan Components Goals, objectives, desired conditions, guidelines and standards to meet the two-tiered approach to ecosystem management and biodiversity.	**Goal 4:** Develop objectives and action plans to achieve these goals.
Fine-Filter Planning Approach Plan components provide for “at-risk species.” **Wildlife** **DC 02:** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range. Lands within critical habitats designated by the U.S. Fish and Wildlife Service provide the physical and biological features identified as essential to the conservation and recovery of listed species.	**Goal 5:** Satisfy legal mandates for rare species recovery.
2012 Planning Rule, National Environmental Policy Act, Cooperating Agency Agreements, Tribal Consultations, and other federal laws. Mandate and encourage public participation and contributions.	**Goal 8:** Implement a process that allows and encourages participation by government agencies, tribes, conservation partners, and the public.

Prepared by Shelly Deisch, South Dakota Game Fish and Parks Wildlife Habitat Biologist and Public Lands Liaison

South Dakota Statewide Comprehensive Outdoor Recreation Plan

South Dakota’s Statewide Comprehensive Outdoor Recreation Plan (SCORP) was developed to satisfy the requirements of the Land and Water Conservation Fund Act. As a requirement of the program, each state is charged with developing a plan that evaluates the demand for and the

supply of outdoor recreation resources in the state. The 2018-2022 South Dakota Statewide Comprehensive Outdoor Recreation Plan examines how to best meet the needs of the State's citizens to provide quality, accessible outdoor recreational facilities in the state.

Draft Revised Plan Components	South Dakota Statewide Comprehensive Outdoor Recreation Plan 2018
Recreation - Emerging Recreational Technologies **DC 1.** New recreational technologies contribute to visitor enjoyment and experiences, consistent with recreation settings.	**Strategy 1:** Provide and promote year around, diverse outdoor recreation opportunities for South Dakotans of all ages, interests, economic status, and ability.
Land Status and Ownership, Access, and Land Uses Multiple Plan Components for acquisition, boundaries, easements, access, etc.	**Strategy 3:** Acquire and protect South Dakota's open space and natural resources for future outdoor recreation opportunities. **Strategy 4 Item**: Improve and increase public access to fish and wildlife related outdoor recreation opportunities.
Multiple Plan Components All vegetation types, air quality, soils, water, riparian, wildlife, and recreation.	**Strategy 4**: Protect and improve the state's fish and wildlife habitat for outdoor recreation opportunities.
Recreational Special Uses **Goal 1.** Work with special use permit holders to deliver interpretation and education messages that instill an appreciation for the natural and cultural resources of the forest, and promotes conservation and stewardship. **Recreational Visitor Education and Interpretation** Multiple Desired Conditions	**Strategy 5**: Educate, promote, and improve communications related to outdoor recreation opportunities.
Multiple Plan Components: Wetland, watershed and aquatic functions and values	**Conservation of wetland functions and values includes**: Outdoor recreation and education, wildlife, wildlife related economic benefits, commercial and sport fisheries related economic benefits, surface and ground water supplies, and maintenance of lake water quality.
Multiple Plan Components: Environmental education, management, land ownership, partnerships.	**Protection Strategies** Conservation of South Dakota's wetland resources is vital if the above described functions and values are to be preserved for future generations. Strategies include: Education, management, acquisition, support of State and Federal regulations and legislation

Prepared by South Dakota Game Fish and Parks

Bureau of Land Management

The purpose of the Bureau of Land Management Resource Management Plans (RMP) is to provide a single, comprehensive land use plan to guide management of public lands administered by each Field Office. The resource management plans provide goals, objectives, land use allocations, allowable uses, and management direction for the Bureau of Land administered surface and mineral estate to maintain, improve, or restore

resource conditions and to provide long term benefits to the public, including the economic needs of local communities based on multiple use and sustained yield, unless otherwise specified by law. The resource management plans goals are most closely aligned with the draft revised plan desired conditions and goals. The review includes the Dillon (2006), Butte (2009), Billings (2015), Miles City (2015) and South Dakota (2015), Field Office resource management plans.

Dillon Field Office, Montana

Land managed by the Dillon Field Office is adjacent to the Custer Gallatin National Forest at the Bear Trap Canyon unit of the Lee Metcalf Wilderness.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses, and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.	**Air Quality** **Goal.** Meet the National Ambient Air Quality Standards under the Clean Air Act (as amended in 1977), and prevent significant deterioration of air quality within the Dillon Field Office Resource Area with all authorized actions.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized.	**Soils** **Goal.** Maintain or improve soil health or fertility, prevent, or minimize soil erosion and compaction, and reduce the possibility of mass wasting on unstable soils.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and	**Water** **Goal.** Restore or maintain the chemical, physical, and biological integrity of the waters in the Dillon Field Office to protect beneficial uses. Prevent water quality degradation, and improve watershed function throughout the planning area. **Riparian and Wetland Vegetation** **Goal.** Restore or maintain riparian wetland areas so that at least 955 miles of streams and 2,050 acres of wetlands are in proper functioning condition. **Fish** **Goal 1.** Manage habitat for resident cold-water species that are of high economic, social, or scientific values. **Goal 2.** Ensure that aquatic habitat is of suitable quality to support a diversity of plant and animal communities.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.	**Goal 3.** Ensure the long-term, self-sustaining persistence and maintain the genetic diversity of the individual populations of westslope cutthroat trout in the Dillon Field Office. **Goal 4.** Ensure the long term self-sustaining persistence of fluvial and adfluvial arctic grayling in the Dillon Field Office area.
At Risk Plants **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present. **Goal 2.** The Custer Gallatin National Forest works with other agencies and landowners to expand inventories, identify potential habitat for at-risk species, and promote protection and restoration of associated habitats.	**Special Status Species - Plants** **Goal 1.** Identify, conserve, and monitor rare, vulnerable, and representative habitats, plant communities, and ecosystems to ensure that there is a self-sustaining persistence of special status plants within the Dillon Field Office. **Goal 2.** Ensure that proposed land uses initiated or authorized by Bureau of Land Management avoid inadvertent damage to federal and non-federal habitats supporting special status plants and plant communities. **Goal 3.** Promote public awareness, appreciation and understanding of rare plants and their habitats.
Vegetation Multiple, detailed desired conditions for forested vegetation. Detailed desired conditions for grassland, shrubland, woodland, riparian, alpine, and sparsely vegetated plant communities. **Timber** **DC-3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **Special Forest Products** **DC-1.** A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses.	**Forests and Woodland Vegetation, and Forest Products** **Goal 1.** Manage forests and woodlands to sustain their vitality, health and diversity. **Goal 2.** Provide opportunities for traditional and nontraditional uses of forest products by incorporating sound ecological principles while contributing to the economic stability of the community. **Rangeland Vegetation** **Goal.** Manage the vegetative resource to maintain a diversity of ecological conditions on upland vegetation.
Fire and Fuels **DC-2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC-3.** There are minimal detrimental impacts to values at risk from wildland fire.	**Wildland Fire** **Goal 1**. Provide the appropriate management response on all wild-land fires, with an emphasis on firefighter and public safety. When assigning priorities, decisions will be based on relative values to be protected commensurate with fire management costs. **Goal 2.** Restore or maintain desired ecological conditions and fuel loadings through use of prescribed fire, wildland fire use, and other treatment methods. **Goal 3.** Use rehabilitation to mitigate the adverse effects of fire on the soil, vegetation, and water resources in a cost effective manner.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Noxious Weeds, Invasive and Non-Native Species** **Goal.** Prevent the introduction and spread of invasive and noxious plants.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Wildlife, including Special Status Birds and Mammals** **Goal 1.** Ensure that native wildlife species are provided habitat of sufficient quantity and quality to enhance biological diversity and sustain their ecological, economic and social values is a goal common to all alternatives. Improve public awareness, understanding and support for resolving issues surrounding wildlife species conservation, management and ecology. **Goal 2**. Ensure the long-term, self-sustaining persistence of special status bird and mammal species in the Dillon Field Office.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Goal 1.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Social and Economic Conditions** **Social Conditions Goal.** Provide for a diverse array of activities that result in social benefits while minimizing negative social effects. **Economics Goal.** Provide for a diverse array of stable economic opportunities in an environmentally sound manner. **Environmental Justice Goal.** Identify and remediate to the extent possible disproportion-ate negative effects to minority or low income populations per Executive Order 12898 titled "*Federal Action to Ad-dress Environmental Justice in Minority Populations and Low-Income Populations."*
Areas of Tribal Interest **DC 2.** Forest resources are available for collection by tribal members with treaty rights. **DC 3.** Tribal members have access to sacred sites and landscapes within the forest and for the exercise of reserved treaty rights and cultural uses.	**Tribal Treaty Rights** **Goal.** Accommodate treaty and legal rights of appropriate Native American groups in management of public lands.
Cultural and historic resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices.	**Cultural Resources** **Goal 1.** Preserve and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. **Goal 2.** Reduce imminent threats from natural or human-caused deterioration, or potential conflict with other resource uses, by identifying priority geographic

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
DC 2. Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.	areas for new field inventory, based upon a probability for unrecorded significant resources. **Goal 3.** Ensure that all authorizations for land and resource use avoid inadvertent damage to federal and nonfederal cultural re-source in compliance with Section 106 of the National Historic Preservation Act. **Goal 4.** Promote stewardship, conservation, and appreciation of cultural resources through educational and public outreach programs in accordance with the Bureau of Land Management Heritage Education program. **Goal 4.** Consult with Native Americans to identify any of their cultural values or religious beliefs that may be affected by Bureau of Land Management authorizations or actions.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Permitted Livestock Grazing** **Goal.** Manage the public rangelands to provide for a sustainable level of livestock grazing consistent with multiple use and sustained yield.
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) is available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **DC 7.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia. **DC 3.** Abandoned mines lands and areas impacted by past mining activities are returned to a state of site condition comparable to pre-mineral activity and provide comparable form and function based on site potential. **DC 4.** Underground environments in abandoned mines remain unaltered except where necessary to protect associated natural resources, such as wildlife as well as human health and safety concerns. **DC 8.** Geologic hazards (such as, erionite/offretite, naturally occurring radioactive materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.	**Minerals** **Goal 1.** Advance dependable, affordable, and environmentally responsible production and distribution of leasable minerals 44 Dillon ROD/RMP Resource Management Plan by identifying lands appropriate for lease and development. **Goal 2.** Allow environmentally responsible geophysical exploration for energy resources in the Dillon Field Office on lands ad-ministered by the Bureau of Land Management. **Locatable Minerals Goal.** Encourage and facilitate development of locatable minerals in a manner to prevent unnecessary or undue degradation. **Saleable Minerals Goal.** Provide for the extraction of mineral materials to meet public demand, while minimizing adverse impacts to other re-source values. **Renewable Energy Goal.** Provide opportunities for the development of renewable energy resources from sources such as wind, biomass, so-lar, and low-impact hydropower while minimizing adverse impacts to other resource values. **Geologic Resources Goal.** Provide opportunities for use of the geology of the area while protecting resource values. **Abandoned Mine Lands Goal.** Protect humans and the environment from exposure to abandoned mine lands while considering associated resource values such as historic resources.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
	Hazardous Materials Goal. Protect humans and the environment from exposure to hazardous materials. **Paleontological Resources Goal.** Preserve and protect significant paleontological resources and ensure that they are available for appropriate scientific, educational, and where appropriate recreational, uses by present and future generations.
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **DC 2.** The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	**Transportation and Facilities Maintenance** **Goal.** Manage facilities, including roads and trails, to provide for public access or administrative needs, while maintaining or protecting resource values and in coordination with other federal agencies, state and local governments, and private landowners.
Recreation (the forest plan is not a travel management plan) **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.	**Travel Management and Access** **Goal.** In coordination with other federal agencies, state and local governments, and private landowners, manage motorized travel to provide recreational experiences while maintaining or protecting resource values.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
Recreation **DC-2.** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation. **DC-3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **Developed recreation** **DC 2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities. **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands. **Recreation special uses** **DC 2.** Services provided by recreation special uses enhance the recreation experiences of forest visitors, enhance public health and safety, and protect natural resources. **DC 3.** Recreation special uses contribute to economic sustainability and are compatible with ecological and social experience thresholds.	**Recreation.** **Goal 1**. Provide a diverse array of quality, resource based recreation opportunities while protecting and interpreting the resource values, providing educational opportunities, minimizing user conflicts, and promoting public safety. **Goal 2.** Develop and maintain appropriate recreation facilities, balancing public demand, protection of Public Land resources, and fiscal responsibility. **Goal 3.** Issue special recreation permits in an equitable manner for specific recreational uses of the public lands and related waters as a means to minimize user conflicts, control visitor use, to protect recreation resources, and to provide for private and commercial recreation use. **Goal 4.** Develop and maintain cooperative relationships with national, state and local recreation providers, tourism entities, and local recreational groups.
Scenery **DC 2.** The forest's scenery, as directed by the Scenic Integrity Objectives, positively contributes to the quality of life of local residents and visitors while reflecting a relative range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics and sustainability.	**Visual Resources** **Goal.** Manage scenic values in accordance with the objectives established for visual resources management classes as presented in Table 8.
Wilderness **DC 1.** Key qualities of wilderness character for a given area including untrammeled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated.	**Wilderness** **Goal.** Manage designated wilderness areas for the preservation of natural conditions and processes, and to provide opportunities for solitude or a primitive and unconfined type of recreation.

Draft Revised Plan Components	Dillon Field Office 2006 RMP Components
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 2.** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands. **Land Uses** **Goal 2.** The Forest Service coordinates with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.	**Lands and realty** **Goal 1.** Meet public needs for use authorizations such as rights-of- way, leases, and permits while minimizing adverse impacts to other resource values. **Goal 2.** Retain public lands with high resource values in public ownership. Adjust land ownership to consolidate public land holdings, acquire lands with high public resource values, and meet public and community needs. **Goal 3.** Acquire and maintain access to public lands where needed to improve management efficiency and facilitate multiple use and the public's enjoyment of these lands in coordination with other federal agencies, state and local governments, and private landowners. **Goal 4.** Utilize withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes. **Utility and Communication Corridors Goal.** Encourage the use of designated right-of-way corridors and use areas to the extent practical in order to minimize ad-verse environmental impacts and the proliferation of separate rights-of-way.
	Not applicable: Special designations not adjacent to the Custer Gallatin National Forest.

Butte Field Office, Montana

The Butte Field Office manages some 15 parcels adjacent to the Custer Gallatin National Forest east side of the Yellowstone River in the Paradise Valley.

Draft Revised Plan Components	Butte Field Office 2009 RMP Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.	**Air Quality.** **Goal AQ1.** Ensure Bureau of Land Management authorizations and management activities protect the local quality of life and sustain economic benefits by complying with tribal, local, state, and federal air quality regulations, requirements and implementation plans.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits.	**Soil Resources** **Goal SR1**. Manage uses to minimize accelerated soil erosion and compaction and maintain surface soil water infiltration based on site-specific conditions.

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	Goal SR2. Maintain or improve soil health and fertility, prevent or minimize erosion and compaction while supporting multiple use management.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-5**. The sediment regime within water bodies is within the range of conditions of the reference watersheds, as defined by agency monitoring. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport. **DC-6.** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (for example, bankfull width, depth, entrenchment ratio, slope, and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-8.** Municipal watersheds provide long-term predictable amounts of clean drinking water for those downstream communities that derive their principal water from them. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses, and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Riparian Management Zones**	**Water Resources** **Goal WR1.** Restore or maintain the chemical, physical, and biological integrity of water resources to protect designated beneficial uses and achieve water quality standards. **Goal WR2.** Maintain existing or acquire new water rights on lands in the Decision Area to ensure water availability for multiple-use management. **Goal WR3.** Minimize erosion and subsequent sedimentation for improved stream and watershed health. **Goal WR4.** Maintain or improve morphological conditions to a stable state that can fully support beneficial uses. **Goal WR5.** Protect water quality for municipal, industrial, agricultural, recreation, and residential purposes by adopting protective measures to meet tribal, state, and local water quality requirements. **Riparian Vegetation** **Goal RV1.** Manage riparian and wetland communities to move toward or remain in proper functioning condition (appropriate vegetative species composition, density, and age structure for their specific area). Manage these communities to be sustainable and provide physical stability and adequate habitat for a wide range of aquatic and riparian dependent species. **Goal RV2.** Manage wetland and riparian habitats to support healthy, diverse and abundant populations of fish and associated aquatic and riparian dependent species.

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DC-1. Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism. **DC-2.** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge, and have an intact flow regime similar to historical flow patterns.	
Vegetation **Multiple Desired Conditions for forested, old growth, grassland, shrubland, woodland, riparian, alpine, and sparse vegetation** **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Vegetation Communities** **Goal GS1.** Manage upland vegetation communities to move toward or remain in proper functioning condition, including a full range of herbaceous and shrub species. **Goal GS2.** Maintain or enhance communities of priority species or habitats (for example, mountain mahogany, sagebrush, and bitterbrush) to provide desired ecological functions and values.
Timber **DC-1.** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also sustaining ecosystem health. **DC-3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies.	**Forests and Woodlands (including Forest Products)** **Goal FW1.** Restore or maintain the health and productivity of public forests, to provide a balance of forest and woodland resource benefits, as well as wildlife and watershed needs to present and future generations. **Goal FW2.** Manage forestry resources to provide a sustained flow of local social and economic benefits and protect non-market economic values. **Goal FW3.** Maintain and improve sustainability and diversity of woodland communities to meet ecological site potential. **Goal FW4.** Manage dry forest types to contain healthy, relatively open stands with reproducing site-appropriate, desired vegetation species. **Goal FW5.** Manage moist forest types to contain healthy stands that combine into a diversity of age classes, densities, and structure (including dead and down material). **Goal FW6.** Manage old forest structure in a sustainable manner. (Note: old forest structure is defined by the following: large, old trees; large standing dead trees [snags]; fallen trees or logs on the forest floor; multiple canopy layers; and a developed, patchy understory. In forest types subject to frequent, low-intensity fire such as dry Douglas-fir or ponderosa pine, old

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	forest structure is typically characterized by relatively open understories and fewer large fallen trees).
Fire and Fuels **DC-1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. Please refer to the glossary for the definition of fire regimes. **DC-2.** Vegetation conditions (composition, structure, and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC-3.** There are minimal detrimental impacts to values at risk from wildland fire. **Goal -1.** The Custer Gallatin National Forest coordinates fire management actions with State, local, Tribal and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.	**Wildland Fire Management** **Goal FM1.** Provide an appropriate management response to all wildland fires, emphasizing firefighter and public safety. **Goal FM2**. Move toward restoring and maintaining desired ecological conditions consistent with appropriate fire regimes. **Goal FM3**. Minimize the adverse effects of fire and fire suppression activities on resources, resource uses, and wildland urban interface. **Goal FM4**. Promote seamless fire management planning across jurisdictions within the boundaries of the Butte Field Office. **Goal FM5**. Protect life and property by treating hazardous fuels on Bureau of Land Management lands.
Invasive Species **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Noxious Weed Management** **Goal NW1**. Minimize infestations of invasive plants and noxious weeds.
Wildlife **DC 2.** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range. Lands within critical habitats designated by the U.S. Fish and Wildlife Service provide the physical and biological features identified as essential to the conservation and recovery of listed species. **DC 3.** Vegetation conditions are generally within the natural range of variation as described for vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **Goal-2.** The Forest Service coordinates management actions with other Federal, State and local agencies, Tribes, and adjacent land owners. Opportunities to	**Wildlife, Fish, Wildlife Habitat, Special Status and Priority Plant and Animal Species** **Goal WF1**. Manage to provide a variety of well-distributed plant communities to support a diversity of habitats. **Goal WF2**. Conserve, enhance, restore, or minimize impacts to areas of important wildlife habitat such as rare or limited seasonal habitats, corridors, and blocks of intact functional habitat across the landscape, areas of low road-density, and foraging areas. **Goal WF3**. Conserve, enhance, or restore special habitat features or minimize impacts to special habitat features including, but not limited to caves, cliffs, riparian areas, wetlands, snags, and down woody material.

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manage wildlife habitat and provide for connectivity are expanded through coordination and collaboration along and across administrative boundaries. **Greater Sage grouse** **DC 1.** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood-rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures.	**Goal WF4**. With all management activities or authorizations: conserve, enhance, restore, minimize impacts to, or contribute to the recovery of threatened, endangered, or candidate plant or animal species. **Goal WF5**. With all management activities or authorizations: conserve or enhance sensitive and priority species and habitats; or minimize adverse effects to habitat of Bureau of Land Management sensitive plant and animal species to prevent the federal listing of these species. **Goal WF6**. Collaborate and cooperate with non-Bureau of Land Management entities to conserve special status species and habitats. **Goal WF7**. Protect, maintain, restore, and rehabilitate sagebrush habitat in occupied or historic sage grouse habitat.
Social and economic sustainability **DC 1.** Key forest resources, products, services, and opportunities including clean air, clean water and aquatic ecosystems, terrestrial ecosystems, education and volunteer programs, flood control, infrastructure, forest products, mineral and energy resources, historic, cultural, tribal or archeological sites, geologic features, grazing, scenery, recreation, spiritual inspiration, opportunities to experience peace, quiet and solitude in nature, free roaming wildlife and designated areas (including their intrinsic values) contribute to the well-being, quality of life, mental, physical and spiritual health and safety of the public. **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **DC 3.** Ecosystems structures and functions provide for clean air and water; desirable recreation and tourism opportunities; forest products; livestock forage; plant and animal food supplies, carbon sequestration, water storage; and mineral and other energy resources. **Goal-1.** The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Social and Economic Environment** **Goal SE1**. Provide opportunities for economic benefits while minimizing adverse impacts on resources and resource uses. **Goal SE2**. Provide for a diverse array of activities that result in social benefits for local residents, businesses, visitors, interested citizens, and future generations, while minimizing negative social effects. **Goal SE3**. Sustain, and where appropriate, restore the health of forest, rangeland, aquatic, and riparian ecosystems administered by the Bureau of Land Management to provide a sustained flow of economic benefits within the capability of the ecosystem. **Goal SE4**. Protect visual quality, wildlife habitats, and recreation opportunities to sustain non-market values. **Goal SE5**. Make resource commodities available to provide a sustainable flow of economic benefits within the capability of the ecosystem. **Environmental Justice (EJ)** **Goal EJ1**. Identify and remediate to the extent possible disproportionate negative effects to minority or low income populations per Executive Order 12898 – “Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations.”

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Areas of Tribal Interest **DC 2.** Forest resources are available for collection by tribal members with treaty rights. **DC 3.** Tribal members have access to sacred sites and landscapes within the forest and for the exercise of reserved treaty rights and cultural uses.	**Tribal Treaty Rights** **Goal TT1**. Accommodate treaty and legal rights of Native American groups in management of public lands.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **Energy, Minerals and Geologic Areas of Interest** **DC 6.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.	**Cultural Resources, Traditional Cultural Properties, and Paleontological Resources** **Goal CP 1**. Identify cultural resource sites, traditional cultural properties, and paleontological localities and mitigate impacts from natural or human-caused deterioration. **Goal CP2**. Preserve and protect eligible cultural resource sites, traditional cultural properties, and paleontological localities to ensure that they are available for appropriate uses by present and future generations.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Livestock Grazing** **Goal LG1**. Manage for a sustainable level of livestock grazing while meeting or progressing toward land health standards. **Goal LG2**. Maintain, restore, or enhance Bureau of Land Management rangelands to meet the land health standards. **Goal LG3**. Manage livestock grazing to provide a sustained flow of local economic benefits and to protect non-market economic values.
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar, and wind energy) is available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **DC 7.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia. **DC 3.** Abandoned mines lands and areas impacted by past mining activities are returned to a state of site condition comparable to pre-mineral activity and provide comparable form and function based on site potential.	**Energy and Minerals** **Goal EM1**. Ensure that federal minerals are available for energy and mineral exploration and development. **Goal EM2**. Manage exploration and development of mineral resources and ensure they are conducted in an environmentally sound manner. **Goal EM3**. Where possible, conserve significant, or unique geological features. **Abandoned Mine Lands (AML)** **Goal AM1**. Reclaim abandoned mine lands sites on public land to improve water quality, plant communities, and diverse fish and wildlife habitat. **Goal AM2**. Reduce or eliminate risks to human health from hazardous mine openings. **Goal AM3**. Protect historic resources and wildlife habitat commonly associated with abandoned mine lands sites. **Hazardous Materials Management**

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DC 4. Underground environments in abandoned mines remain unaltered except where necessary to protect associated natural resources, such as wildlife as well as human health and safety concerns. **DC 8.** Geologic hazards (such as, erionite/offretite, naturally occurring radioactive materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.	**Goal HM1**. Minimize threats and reduce risks to the public and environment from hazardous materials or sites.
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality, and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.	**Transportation and Facilities** **Goal TF1**. Maintain facilities, roads, and trails to provide for public and administrative use and safety while mitigating impacts to resources.
Recreation (the forest plan is not a travel management plan) **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.	**Travel Management and Access** **Goal TM1**. Provide a balanced approach to travel management that provides a sustained flow of local economic benefits, minimizes user conflicts, safety concerns, and resource impacts while taking into consideration the unique attributes and values of the various travel planning areas.
Recreation **DC-1.** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area. **DC-3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **Developed Recreation** **DC-2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide	**Recreation Management** **Goal RM1**. Provide a diverse array of recreational opportunities while maintaining healthy public land resources. **Goal RM2**. Establish, manage, and maintain quality recreation sites and facilities to meet a broad range of public needs subject to appropriate resource constraints. **Goal RM3**. Manage commercial, competitive, or special events with special recreation permits that eliminate or minimize impacts on resources and conflicts with other users.

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for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities. **Recreation Special Uses** **DC-3.** Recreation special uses contribute to economic sustainability and are compatible with ecological and social experience thresholds.	**Goal RM4**. Manage recreation opportunities to provide a sustained flow of local economic benefits and protect non-market economic values.
Scenery **DC 2.** The forest's scenery, as directed by the Scenic Integrity Objectives, positively contributes to the quality of life of local residents and visitors while reflecting a relative range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics and sustainability.	**Visual Resources** **Goal VR1**. Manage visual resources in accordance with visual resources management classifications described below.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **Land Uses** **DC 1.** Opportunities are available for a variety of land (non-recreation) special uses that include energy transmission rights of way, communication uses, roads, research activities, and other public services, on lands that are suitable for these activities.	**Lands and Realty** **Goal LR1**. Seek opportunities to acquire non-federal land or interest in non-federal land with important resources and resource uses. **Goal LR2**. Provide land-use opportunities contributing to a sustained flow of economic benefits and meet local infrastructure needs while protecting or minimizing adverse impacts to resources and resource uses.
	Not applicable: Special designations: the designations do not occur next to CGNF lands

Billings Field Office, Montana

The Billings Field Office manages lands adjacent to the Custer Gallatin National Forest on the Beartooth Face and on the west, south, and east sides of the Pryor Mountains.

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Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses, and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur.	**Air Resources** **Goal AIR 1**. Ensure authorizations and management activities comply with local, State, and Federal air quality regulations and requirements. **Goal AIR 2.** Manage Bureau of Land Management authorized activities to maintain compliance with the National Ambient Air Quality Standards,

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Goal 1. The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	Montana Ambient Air Quality Standards, and the Montana State Implementation Plan (MSIP). **Goal AIR 3**. Reduce air quality and air quality related value (AQRV) impacts, including visibility and acid deposition, by including technically and economically feasible management actions to reduce emissions of criteria and hazardous air pollutants.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized. **DC-3.** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions.	**Soil Resources** **Goal SOIL 1.** Maintain or improve soil health and productivity (for example, chemical, physical, and biotic properties) by implementing Standards for Rangeland Health and other soil protection measures. **Goal SOIL 2.** Minimize accelerated soil erosion and compaction and maintain surface soil water infiltration based on site specific conditions. **Goal SOIL 3.** Manage Bureau of Land Management-authorized activities to minimize soil mass movement (primarily from accelerated water/wind erosion) resulting from fire, above-ground disturbances, and accelerated stream bank erosion. **Goal SOIL 4.** Manage soil resources to. • Prevent or minimize accelerated soil erosion • Prevent or minimize flood and sediment damage, as needed. • Establish desirable plant communities, maintain existing desirable vegetative ground cover composition consistent with the ecological site characteristics, and sustain other ground cover including biotic crusts and litter to increase or maintain surface soil stability and nutrient cycling • Manage Bureau of Land Management-authorized activities to minimize sediment delivery to creeks, streams, and standing bodies of water (lakes, ponds, reservoirs, etc.).
Watershed and Aquatics **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-5**. The sediment regime within water bodies is within the within the range of conditions of the reference watersheds, as defined by agency monitoring.	**Water Resources** **Goal WATER 1**. Maintain or improve surface water and groundwater resources, maintain compliance with applicable Federal and State water quality standards, and improve water quality where practical within the scope of the Bureau of Land Management's authority. **Goal WATER 2**. Restore or maintain the chemical, physical, and biological integrity of water resources to protect designated beneficial uses and achieve water quality standards. **Goal WATER 3**. Minimize erosion and subsequent sedimentation for improved stream and watershed health.

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Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport. **DC-6.** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (for example, bankfull width, depth, entrenchment ratio, slope and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-8.** Municipal watersheds provide long-term predictable amounts of clean drinking water for those downstream communities that derive their principal water from them. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels.	**Goal WATER 4**. Maintain or improve morphological conditions to a stable state that can fully support beneficial uses. **Goal WATER 5**. Protect water quality for municipal, industrial, agricultural, recreation, and residential purposes by adopting protective measures to meet federal, tribal, state, and local water quality requirements. **Goal WATER 6**. Floodplains are properly functioning allowing for aquifer recharge, wildlife habitat, and flood water retention. **Goal WATER 7**. Stream channel conditions are representative of the site capacity and dimension and moderate flows to allow floodplain aquifer recharge and safeguard floodplains. **Goal WATER 8.** Secure and protect water rights for beneficial uses on the Bureau of Land Management administered lands to ensure water availability to the Bureau of Land Management authorized uses and programs.
Watershed and Aquatics **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-11.** Instream and riparian habitat conditions in managed watersheds move towards conditions similar to those in reference watersheds (conditions such as, large woody debris recruitment, pool frequency and residual depth, width-to-depth ratios, stream shading and temperature, bank stability, etc.). **Goal 1.** The Forest Service cooperates with Montana Fish Wildlife and Parks and South Dakota Fish and Game to reintroduce genetically pure native fish species in their historic range and introduce in locations the state(s) and the forest agree to for native fish species conservation.	**Fisheries Habitat and Special Status Species (FISHERIES) (FH & SSS)** **Goal FH & SSS** 1. Manage aquatic habitat to provide native and desirable non-native species diversity and viability, and sustain ecological, economic, and social values while providing for multiple uses of public lands. **Goal FH & SSS 2**. Manage aquatic ecosystems to provide sustainable recreational and educational benefits to the public. **Goal FH & SSS 3.** Manage fisheries habitat to support Montana Fish, Wildlife and Park's (MTFWP) Strategic Habitat Plan and the Montana Comprehensive Fish and Wildlife Conservation Strategy **Goal FH & SSS 4.** Management activities will emphasize restoration and/or maintenance of riparian structure, composition, and processes, including physical integrity of riparian ecosystems, amount and distribution of woody

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	debris to sustain physical and biological complexity, adequate summer and winter thermal regulation, water quality and hydrologic processes, distribution and diversity of riparian vegetative communities and source habitats for riparian dependent species. **Goal FH & SSS 5**. Use cooperative efforts to minimize negative impacts on, or enhance aquatic ecosystems on adjacent private lands. **Goal FH & SSS 6**. Coordinate with other agencies to prevent or control diseases, pests and species that threaten the health of humans, wildlife, livestock, and vegetation. **Goal FH & SSS 7**. Manage or restore habitat on Bureau of Land Management-administered lands within the planning area to facilitate the conservation, recovery and maintenance of populations of native and special status species (Bureau of Land Management special status species, Candidate species, U.S. Fish and Wildlife Service listed, proposed, or petitioned species) consistent with appropriate local, State, and Federal management plans. **Goal FH & SSS 8.** Yellowstone Cutthroat Trout bearing waters and associated riparian habitat will be managed to protect all ecological values necessary to maintain or enhance Yellowstone Cutthroat Trout populations (using guidelines outlined in the Conservation Strategy for Yellowstone Cutthroat Trout in the States of Idaho, Montana, Utah, Nevada, and Wyoming).
Riparian Management Zones (RMZ) **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism. **DC-1.** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge and have an intact flow regime similar to historical flow patterns. **Terrestrial Vegetation** Detailed **desired conditions** for riparian plant communities. **Invasive Species**	**Vegetation. Riparian and Wetlands (VEG/R&W)** **Goal VEG/R&W 1**. Riparian and wetland areas will be managed to promote healthy wetland ecosystems, supporting physical processes and natural combinations of vegetation that work together to create stable stream banks, functional floodplains, complex fish and wildlife habitat ,and high water quality within site potential. **Goal VEG/R&W 2.** Riparian vegetation will be managed to achieve or sustain desired future conditions. The desired future conditions will be developed by an interdisciplinary team, giving consideration to restoring and promoting natural communities and complex riparian conditions valuable to water quality and wildlife habitat. **Goal VEG/R&W 3**. Invasive species management will focus on restoring native and desired non-native communities to riparian areas to attain desired future conditions.

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DC-2. Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	
Terrestrial Vegetation **Detailed Desired Conditions for forested vegetation** Detailed **desired condition** for woodland plant communities.	**Vegetation. Forests and Woodlands (VEG/F&W)** **Goal VEG/F&W 1**. Restore or maintain the health and productivity of public forests and woodlands to provide a balance of forest and woodland resource benefits to current and future generations. **Goal VEG/F&W 2.** Manage forests and woodlands, considering factors such as species, density, canopy cover, age class, and stand health and understory components, to restore vitality, health, and diversity. **Goal VEG/F&W 3.** Promote forest vegetation recovery on forested lands after wildfire events. **Goal VEG/F&W 4.** Use fire and fuels treatments as an integrated approach to meet forest health objectives. **Goal VEG/F&W 5**. Return forests toward a more natural forest condition class and fire regime by implementing treatments that move forest conditions toward FRCC1. **Goal VEG/F&W 6.** Natural disturbance regimes will be maintained or mimicked so that plant communities are resilient to climate change and periodic outbreaks of insects, disease, and wildfire. **Goal VEG/F&W 7**. Manage quaking aspen stands to promote vigor and resilience and to promote expansion of its current range. **Goal VEG/F&W 8**. Manage coniferous and deciduous forests to promote vigor and resilience. **Goal VEG/F&W 9.** Manage forests and woodlands to meet or exceed the standards identified in Bureau of Land Management's Standards for Rangeland Health (Standards 1 and 5).
Terrestrial Vegetation Detailed **desired conditions** for grassland and shrubland plant communities. **DC-1.** Native plant communities are self-sustaining relative to site capability and potential, and support a mosaic of diverse seral stages, life forms and age classes. **DC-2.** Native plant species dominate. Nonnative species (such as cheatgrass, Kentucky bluegrass, timothy, and smooth brome) may be present but do not increase in abundance and/or extent from management activities.	**Vegetation. Rangelands and Shrublands (VEG/R&S)** **Goal VEG/R&S 1.** Manage vegetative resources to maintain a diversity of ecological conditions on rangelands while providing for a variety of multiple uses that are economically feasible, and based on sound biological principles and the best available science. **Goal VEG/R&S 2.** Manage vegetative communities to restore, maintain or enhance vegetation community health, habitat, composition and diversity to provide a mix of successional stages that incorporate diverse structure and composition in the desired vegetation types.

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	Goal VEG/R&S 3. Maintain, improve, enhance, or restore habitat to facilitate the conservation, recovery, and maintenance of populations of native and desirable nonnative plant and animal species. **Goal VEG/R&S 4**. Promote recovery and restoration of sagebrush communities after wildfire events.
At Risk Plant Species **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Vegetation. Special Status Plants (Veg/SSP)** **Goal Veg/SSP 1**. Conserve and recover special status plant species and the ecosystems on which they depend to prevent the need to list any of these species as threatened or endangered. **Goal Veg/SSP 2.** Protect or enhance areas of ecological importance for special status plant species. Manage for no net loss of habitat for any special status plant species. **Goal Veg/SSP 3.** Conserve and recover special status plant species by determining and implementing strategies, restoration opportunities, use restrictions, and management actions. **Goal Veg/SSP 4.** Manage specific environmental hazards, risks, and impacts in a manner compatible with special status plant species health.
Invasive Species **DC-1.** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the forest. Where invasive species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative species occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems. **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function. **Goal 1.** Coordination and cooperation with Federal, State, and County agencies, Tribes, non-government organizations, permittees, and adjacent landowners support integrated pest management including invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities.	**Vegetation. Invasive Species and Noxious Weeds (VEG/IS&NW)** **Goal VEG/IS&NW 1.** Manage for healthy native plant communities and desirable nonnative plant communities by reducing, preventing expansion of, or eliminating the occurrence of undesirable invasive species, undesirable nonnative, or noxious weeds (predatory plant pests or disease) by implementing management actions consistent with national guidance, state and local weed management plans. **Goal VEG/IS&NW 2**. Use integrated pest management to make progress towards a healthy plant community, while meeting multiple land use objectives and meeting Standards for Rangeland Health (Standards 1, 2, and 5). **Goal VEG/IS&NW 3**. Maintain baseline data to evaluate effectiveness of management actions and assess progress toward meeting invasive species management goals/objectives. **Goal VEG/IS&NW 4**. Create buffer zones to protect and/or restore fish and wildlife habitat and neighboring agricultural fields. **Goal VEG/IS&NW 5**. Control invasive and non-native weed species and prevent the introduction of new invasive species, including aquatic nuisance species (ANS), by implementing a comprehensive weed program including, coordination with key partners, prevention and early detection, education,

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	inventory and monitoring, and using principles of integrated pest management and creating weed management areas (WMAs).
Fire and Fuels **DC 1**. Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. Please refer to the glossary for the definition of fire regimes. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire. **Goal 2.** The Custer Gallatin National Forest coordinates fire management actions with State, local, Tribal, and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.	**Fire Ecology and Management (FIRE)** **Goal FIRE 1**. Manage wildfire and fuels for the protection of public health, safety, property, and resource values. The protection of human life is the single, overriding priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. **Goal FIRE 2.** Manage hazardous fuels in areas of urban and industrial interface to reduce potential loss due to fire. **Goal FIRE 3.** Maintain desired mix of seral stages within vegetation communities, including desert shrublands, forest and woodlands, grasslands, mountain shrublands, sagebrush (all sub-species), riparian/wetlands and aspen. **Goal FIRE 4.** Manage vegetation communities through cooperative efforts by restoring natural fire regimes and frequency to the landscape, where appropriate. **Goal FIRE 5**. Maintain partnerships with the public and interagency cooperators to strengthen coordination of all fire management activities and encourage the creation of fire-safe communities. **Goal FIRE 6**. Utilize an integrated management technique unless otherwise restricted (defined as prescribed fire, mechanical, chemical, or biological, followed by desired reseeding) to reduce fuels to protect high priority areas or resource values.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-2.** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range. Lands within critical habitats designated by the U.S. Fish and Wildlife Service	**Wildlife Habitat and Special Status Species (WLH & SSS)** **Goal WLH & SSS 1.** Manage terrestrial habitat to provide native species diversity and viability, and to sustain ecological, economic, and social values while providing for multiple uses of public lands. **Goal WLH & SSS 2.** Manage for no net loss and connectivity of priority habitats on Bureau of Land Management-administered lands. The necessary habitat will be present to maintain, enhance, or restore T & E, special status, and priority native species populations. Sagebrush, native grasslands, seasonal or crucial wildlife ranges, special status species habitat, fisheries, cottonwood galleries, and riparian/wetlands will be priorities.

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provide the physical and biological features identified as essential to the conservation and recovery of listed species. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **DC-5.** Landscape patterns throughout the planning area provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC-6.** Habitat conditions within and near Custer Gallatin boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries. **Greater sage-grouse** **DC 1.** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood-rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures. **Goal 2.** The Forest Service coordinates management actions with other Federal, State and local agencies, Tribes, and adjacent land owners. Opportunities to manage wildlife habitat and provide for connectivity are expanded through coordination and collaboration along and across administrative boundaries.	**Goal WLH & SSS 3**. Manage all Bureau of Land Management actions or authorized activities to sustain wildlife populations and their habitats and to avoid contributing to the listing of or jeopardizing the continued existence or recovery of special status species and their habitats. **Goal WLH & SSS 4.** Manage or restore habitat on Bureau of Land Management-administered lands within the planning area to facilitate the conservation, recovery, and maintenance of populations of native, desirable non-native, and special status species consistent with appropriate local, state, and federal management plans. **Goal WLH & SSS 5.** Manage habitats to support Montana Fish Wildlife and Parks in the attainment of objectives and well-distributed, healthy populations of wildlife species consistent with the Montana Fish Wildlife and Parks' Strategic Habitat Plan, Montana's Comprehensive Fish and Wildlife Conservation Strategy, and strategic population plans, and to achieve the stated purpose of designated State of Montana Wildlife Management Area. **Goal WLH & SSS 6**. Minimize fragmentation of large intact blocks of wildlife habitat to maintain connectivity, population migrations and functional blocks of security habitat for big game species. **Goal WLH & SSS** 7. Manage environmental risks and associated impacts in a manner compatible with sustaining plant, fish, wildlife, and special status species populations. Environmental risks include, but are not limited to, parasites, diseases, insect outbreaks, catastrophic fires, contamination, pesticides, rodenticides, herbicides, climate, and other hazards. **Goal WLH & SSS 8**. Provide for the long-term conservation, enhancement, and restoration of the sagebrush steppe/mixed-grass prairie complex in a manner that supports sustainable greater sage-grouse populations and a healthy diversity and abundance of wildlife species. **Goal WLH & SSS 9**. Coordinate with other agencies to prevent or control diseases, pests and species that threaten the health of humans, wildlife, livestock, and vegetation. **Goal WLH & SSS 10**. **Priority Habitat Management Areas (PHMA) for Greater Sage-Grouse habitat.** To maintain or improve greater sage-grouse populations by maintaining greater sage-grouse habitat in good condition. **Goal WLH & SSS 11**. **Greater Sage-Grouse Restoration Habitat Management Areas (RHMAs).** In these areas, Bureau of Land Management will manage habitat so that greater sage-grouse populations can be restored over the long-term. Bureau of Land Management will strive to restore historical

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	greater sage-grouse habitat functionality, or at a minimum, have no net loss of greater sage-grouse habitat, to support greater sage-grouse populations. **Goal WLH & SSS 12. Greater Sage-Grouse Habitat. General Habitat Management Areas (GHMA).** Bureau of Land Management will maintain habitat for viable greater sage-grouse populations to promote movement and genetic diversity. Maintain, restore or enhance greater sage-grouse habitat and connectivity between sagebrush habitats, with emphasis on those habitats occupied by greater sage-grouse.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Goal 1**. The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. **Areas of Tribal Importance** **Goal 1.** Cultural landscapes, sacred sites and other culturally significant areas identified by Tribes provide tangible links to historically rooted beliefs, customs and practices and are maintained and managed through coordination with the appropriate Tribes.	**Social and Economic Conditions and Environmental Justice (SEC/EJ)** **Goal SEC/EJ 1**. Provide opportunities for economic sustainability at the national, regional, and local level. **Goal SEC/EJ 2.** Provide for a diverse array of opportunities that result in social benefits for local residents, businesses, recreationists, visitors, interested citizens and future generations, while minimizing the negative social effects. **Goal SEC/EJ 3**. Identify and remediate, to the extent possible, disproportionate negative impacts on minority or low income populations per EO 12898. **Goal SEC/EJ 4**. Bureau of Land Management will continue to notify and consult with appropriate American Indian Tribes and Bureau of Land Management authorized actions. Consultation and coordination will be conducted on a government-to-government basis with federally recognized tribes with cultural affinity to the decision area. Management of public lands will accommodate the exercise of rights provided by treaties or law that are applicable to the planning area. Bureau of Land Management will coordinate with appropriate entities within tribal government on issues under its jurisdiction to determine appropriate protocols that provide for treaty uses of public lands.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.	**Cultural and Heritage Resources (C&HR)** **Goal C&HR 1**. Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations (FLPMA, Section 103 (c), 201(a) and (c); National Historic Preservation Act (NHPA), Section 110(a); Archaeological Resources Protection Act, Section 14(a)). **Goal C&HR 2**. Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration, or potential conflict with other resource uses (FLPMA Section 203(c), NHPA 106, 110(a) (2)) by ensuring

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DC 3. Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses. **The Nez Perce (Nimíipuu or Nee-Me-Poo) National Historic Trail** **DC 1.** Interpretive materials and identification signage are available for the Nez Perce (Nee-Me-Poo) National Historic Trail.	that all authorizations for land use and resource use will comply with the National Historic Preservation Act, Section 106. **Goal C&HR 3**. Cultural resources on Bureau of Land Management-administered land will be protected and maintained in stable condition. Appropriate management actions will be determined after evaluation and allocation of cultural resource use categories through cultural resource project plans. **Goal C&HR 4**. Maintain viewsheds of important cultural resources whose settings contribute significantly to their scientific, public, traditional, or conservation values. **Goal C&HR 5**. Provide and promote research opportunities that will contribute to our understanding of the ways humans have used and influenced the landscape. **Goal C&HR 6**. Manage historic trails to realize their educational, recreational, and scientific values. **Goal C&HR 7**. Enhance public understanding of, and appreciation for, cultural resources through educational outreach and heritage tourism opportunities.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Livestock Grazing (LG)** **Goal LG 1.** Provide opportunities for livestock grazing as a part of multiple-use in a manner that meets and/or exceeds rangeland health standards. **Goal LG 2.** Maintain existing desirable (allotment categorization) rangeland conditions or improve rangeland health utilizing best grazing management practices. **Goal LG 3**. Monitor and evaluate rangeland health to determine appropriate management actions. **Goal LG 4**. Integrate livestock use and associated management practices with other multiple-use needs and objectives to maintain, protect, and improve rangeland health.
Timber **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **Special Forest Products** **DC-1.** A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses.	**Forestry and Woodland Products (FWP)** **Goal FWP 1.** Manage forest resources to provide a sustained flow of local economic benefits and protect nonmarket economic values, consistent with other resource objectives. **Goal FWP 2.** Provide forest products while maintaining a balance between public demand and the health and productivity of native and desired vegetative communities. Forest product sales include over the-counter sales of firewood, Christmas trees or other products, and small amounts of materials

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	removed as a result of other authorizations such as rights-of-way, road use agreements, grazing leases, or other land uses. **Goal FWP 3.** Provide forest and woodland products including, but not limited to; saw logs, pulp, post/poles, fuel wood, and biomass on a sustainable basis. **Goal FWP 4.** Manage forests and woodlands to meet or exceed the standards identified in Bureau of Land Management's Standards for Rangeland Health (Standards 1 and 5)
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) are available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **DC 5.** Opportunities for rock hounding and other types of noncommercial mineral collecting (for example, for scientific, research, or educational purposes) are available. **DC 6.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.	**Energy & Mineral Resources. Solid Leasables (including coal) (SL-COAL)** **Goal SL-COAL 1.** Make federal solid mineral resources available for exploration and acquisition consistent with other resource goals. **Goal SL-COAL 2**. Identify the public lands open to solid minerals leasing in accordance with existing laws and regulations (43 CFR, Parts 3400 and 3500) **Energy & Mineral Resources. Fluid Mineral Resources (FLUIDS)** **Goal FLUIDS 1.** Provide opportunities for exploration and development of fluid mineral resources on available public lands. **Goal FLUIDS 2.** Provide opportunities for exploring, leasing, and developing conventional oil and gas, coal bed natural gas, and geothermal resources while applying the appropriate lease stipulations and COA to mitigate environmental impacts from development. **Goal FLUIDS 3.** Provide opportunities for geophysical (for example seismic) exploration for oil and gas subject to the appropriate mitigating measures. **Energy & Mineral Resources. Locatable Minerals (LOC_MIN)** **Goal LOC_MIN 1.** Encourage and facilitate development of locatable minerals in the manner to prevent unnecessary or undue degradation, as defined in 3809.5. Provide land use opportunities contributing to economic benefits while protecting or minimizing adverse impacts on other resources. **Goal LOC_MIN 2**. Identify the public lands open to locatable mineral entry in accordance with existing laws and regulations (43 CFR, Part 3700 and 3800). **Energy & Mineral Resources. Mineral Materials (Saleable) (SALE_MIN)** **Goal SALE_MIN 1.** Provide land-use opportunities contributing to economic benefits and meet local infrastructure needs while protecting or minimizing adverse impacts on other resources and resource uses. **Goal SALE_MIN 2.** Identify the public lands open to minerals materials disposal in accordance with existing laws and regulations (43 CFR, Part 3600) **Paleontological Resources (PALEO)**

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	Goal PALEO 1. Identify, manage, and monitor at-risk paleontological resources (scientific values); preserve and protect vertebrate fossils through best science methods; and promote public and scientific use of invertebrate and paleo-botanical fossils. **Goal PALEO 2.** Manage fossil locales with high scientific value in a stable condition, while allowing appropriate scientific and public use. **Goal PALEO 3.** Locate, evaluate, and manage paleontological resources and protect them where appropriate **Goal PALEO 4.** Facilitate suitable scientific, educational, and recreational uses of fossils **Goal PALEO 5**. Ensure that significant fossils are not inadvertently damaged, destroyed, or removed from public ownership as a result of surface disturbance or land tenure adjustments. **Renewable Energy (RE)** **Goals RE 1.** Provide opportunities for the development of renewable energy resources from sources such as wind, biomass, and solar, while minimizing adverse impacts on other resource values. **Goals RE 2.** Make lands available for renewable energy development, consistent with goals and objectives of other resources. **Goals RE 3**. In cooperation with project proponents, promote and enhance scientific knowledge of renewable energy resources in the planning area.
Energy, Minerals and Geologic Areas of Interest **DC-5.** Cave and karst resources, inclusive of significant caves, are available for the use, enjoyment, and provision of benefits associated with the cave or karst resources, while also providing wildlife habitat requirements of stress and disease-free environments for vulnerable, cave-associated species	**Cave and Karst Resources (CAVE)** **Goal CAVE 1**. Manage all cave resources as mandated by the Federal Cave Resources Protection Act of 1988, National Environmental Policy Act, the Endangered Species Act, and other applicable laws and regulations to protect unique, nonrenewable, and fragile biological, geological, hydrological, cultural, paleontological, scientific and recreational values for present and future users. **Goal CAVE 2.** Cave and karst resources will be managed to provide opportunities for scientific research, educational study, and recreational experiences which are compatible and consistent with protection of all biologic and non-biologic resources associated with caves and karst landforms.
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species	**Transportation and Facilities (T&F)** **Goal T&F 1.** Manage roads, primitive roads and trails for public access or administrative needs, while maintaining or protecting resource values, in coordination with other federal agencies, state and local governments and

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of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.	private landowners. This action will be done in coordination with the development and implementation of the TMAs. **Goal T&F 2**. Ensure Bureau of Land Management facilities are maintained to meet public health and safety requirements.
Recreation (the forest plan is not a travel management plan) **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.	**Trails and Travel Management (TTM)** **Goal TTM 1**. Manage access to balance public use and protect public land resources, **Goal TTM 2**. Promote safety for all public land users, and **Goal TTM 3**. Minimize conflicts among off-highway vehicle users and other uses of public lands. **Goal TTM 4**. Goals and objectives will accomplish this by using partnerships with other land managing agencies, local governments, communities, and interest groups through a balanced approach, so as to protect public lands by minimizing impacts and resources while providing opportunities for the safe use and enjoyment of off-highway vehicles. **Goal TTM 5.** The Billings Field Office will use a systematic process that considers the unique resource issues and social environments within each individual TMA and integrate concepts of habitat connectivity into off-highway vehicle planning to minimize habitat fragmentation. **Goal TTM 6**. Establish a long-term, sustainable, multi-modal transportation system of areas, roads, trails, and primitive roads which addresses public and administrative access needs to and across Bureau of Land Management-managed lands and related waters. **Goal TTM 7**. Manage travel and transportation on public lands and related waters in accordance with law, EO, proclamation, regulation, and policy.
Recreation **DC-1.** Recreation activities contribute to jobs and income in the local economy, community stability or growth, and the quality of lifestyles in the area. **DC-3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **Developed Recreation** **DC-2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide	**Recreation and Visitor Services (REC)** **Goal REC 1**. Public lands managed by the Billings Field Office provide a diverse array of benefits to the public, including economic, environmental, personal, and social ones. **Goal REC 1.** The Bureau of Land Management policy is to develop and maintain cooperative relationships with national, state, and local recreation providers, tourism entities, and local recreational groups. **Goal REC 1.** Bureau of Land Management's goal is to develop and maintain appropriate recreational facilities, balancing public demand, protection of public land resources, and fiscal responsibility.

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for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities. **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands.	**Goal REC 1.** The management direction is to emphasize and support collaborative public outreach, awareness events, and programs that promote public service and stewardship, and to encourage sustainable travel and tourism development with local communities and provide community-based conservation support for visitor service. The emphasis is placed on providing interpretive and informational signs and materials for public lands visitors, maintaining facilities to a high standard consistent with the recreational setting, and limiting development of additional facilities to those areas where public recreational use of surrounding public lands requires them.
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands. **DC 2.** The forest's scenery, as directed by the scenic integrity objectives, positively contributes to the quality of life of local residents and visitors while reflecting a relative range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics and sustainability.	**Visual Resources (VISUAL)** **Goal VISUAL 1.** Manage public lands for their scenic values while providing for the overall multiple-use and quality of experience to visitors of public lands. **Goal VISUAL 2.** Establish visual management objectives to minimize adverse impacts on the visual resources on the landscape. **Goal VISUAL 3.** Maintain the overall integrity of visual resources management classes, while allowing for modifications to landscapes in those classes, consistent with the established management objectives.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 2.** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands. **Land Uses** **DC 1.** Opportunities are available for a variety of land (non-recreation) special uses that include energy transmission rights of way, communication uses, roads, research activities, and other public services, on lands that are suitable for these activities.	**Realty, Cadastral Survey, and Lands. Land Tenure Adjustment and Access (R/LT)** **Goal R/LT 1**. Manage the acquisition, disposal, withdrawal, and use of public lands to meet the access needs of internal and external customers and to preserve important resource values. **Goal R/LT 2**. Acquire or retain access to public lands to improve management efficiency, to facilitate multiple uses and public enjoyment of Bureau of Land Management public lands in coordination with private landownership, local, state or federal entities. **Goal R/LT 3**. Maintain and/or acquire access across state/private lands to public lands for recreational opportunities and management of public land resources. **Goal R/LT 4.** Public access will be maintained or improved through all land ownership adjustment transactions. **Realty, Cadastral Survey, and Lands. Rights-of-Way, Leases, and Permits (R/RLP)** **Goal R/RLP 1**. Manage public lands to meet transportation and rights-of-way (ROW) needs while protecting resources.

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	Goal R/RLP 2. Address the needs of industry, utilities, the public, or government entities for land use authorizations while minimizing impacts on other resource values. **Goal R/RLP 3.** Maintain availability of public lands to meet the habitation, cultivation, trade, mineral development, recreation, and manufacturing needs of external customers and the general public. **Goal R/RLP 4**. Indirect effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available. **Realty, Cadastral Survey, and Lands. Withdrawals (R/WD)** **Goal R/WD 1**. Protect significant resources or significant government investments. **Goal R/WD 2.** Use withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes of the withdrawal.
See Pryor Mountain Wild Horse Territory Wildlife cultural and historical resources, At-Risk plant species Energy, Minerals and Geological Areas of Interest	**3.2.3 Special Designations** **East Pryor ACEC (EP/ACEC)** **Goal EP/ACEC 1.** The East Pryor ACEC will be managed to protect wild horse and wildlife habitat, historical/cultural resources, special status plant species, and paleontological values. In addition, the values for which the Crooked Creek Natural Area and the Crooked Creek National Natural Landmark were designated will be maintained.
Eligible wild and scenic rivers **DC 1.** Eligible wild, scenic, or recreational rivers retain their free-flowing condition, preliminary classification, and the outstandingly remarkable values which provide the basis for their inclusion in the system.	**Wild and Scenic Rivers (WSR)** **Goal WSR 1.** The Billings Field Office management strategy is to manage eligible river to protect and enhance the free flowing character, water quality, and outstandingly remarkable values until suitability can be determined through the land use planning process, determine the suitability or non-suitability of eligible rivers for potential inclusion within the NWSR through the land use planning process, manage suitable rivers to protect and enhance the free-flowing character, water quality, and identified outstandingly remarkable values until congress designates the river as a component of the NWSRS or releases the river for other uses.
Pryor Mountain Wild Horse Territory **DC 1.** Pryor Mountain Wild Horse Territory maintains a thriving ecological balance with other resources and activities.	**Wild Horses (WH)** **Goal WH 1.** Maintain, protect, manage, and control a healthy wild horse herd inside the horse management area within the appropriate management level (AML) to ensure a thriving natural ecological balance, while preserving

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DC 2. Efficient and successful management of the entire Pryor Mountain wild horse range is conducted through interagency coordination and cooperation, with Bureau of Land Management as the lead agency. **Goal 1.** The Forest Service coordination with the Bureau of Land Management, and other Federal and State agencies will continue to maintain or enhance wild horse habitat and appropriate management level in a manner which is compatible with wildlife habitat and population numbers	multiple use relationships with other uses and resources, and making progress towards Standards for Rangeland Health (Standards 1 and 5). **Goal WH 2**. Maintain a wild horse herd that exhibits a diverse age structure, genetic diversity, and any characteristics unique to the Pryor horses. **Goal WH 3.** Manage wild horses within a balanced program which considers all values without impairment to the productivity of the land. **Pryor Mountain Wild Horse Range (PMWHR)** **Goal PMWHR 1**. Management activities for other resources and programs within the Pryor Mountain Wild Horse Range will be designed in a manner to minimize impacts on wild horses and their habitat. During the summer and fall seasons the Pryor Mountain Wild Horse Range attracts many members of the public who enjoy viewing the wild horses and other recreational opportunities (for example camping, hiking, all-terrain vehicle riding, hunting, naturalizing, etc.). **Goal PMWHR 2.** Management of the administrative designation area will be to enhance wild horse protection and habitat from congested recreational use, providing for public health, and safety of public land users.
Recommended Wilderness Areas **DC 1.** Recommended wilderness areas maintain their existing wilderness characteristics, so as to preserve opportunities for inclusion in the National Wilderness Preservation System. **DC 2.** Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting. **DC 3.** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.	**Wilderness Study Areas (WSA)** **Goal WSA 1.** Manage Wilderness Study Areas (WSAs) following Bureau of Land Management Manual 6330 – Management of Bureau of Land Management Wilderness Study Areas - until such time as Congress acts upon the recommendations. **Goal WSA 2**. The Bureau of Land Management is statutorily (FLPMA Section 603(c)) required to manage these areas to protect their suitability for Congressional designation into the National Wilderness Preservation System unless and until Congress either designates an area as wilderness or releases it from further consideration. **Lands With Wilderness Characteristics (LWC)** **Goal LWC 1.** Protect, preserve, and maintain wilderness characteristics in areas inventoried and found to possess them. **Goal LWC 2.** LWCs will be managed to maintain. • A high degree of naturalness (where lands and resources are affected primarily by the forces of nature and where the imprint of human activity is substantially unnoticeable); • Outstanding opportunities for solitude (when the sights, sounds, and evidence of other people are rare or infrequent and where visitors can be isolated, alone or secluded from others), and

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	• Outstanding opportunities for primitive and unconfined recreation, where the use of the area will be through non-motorized, non-mechanical means, and where no or minimal developed recreation facilities are encountered.
Watershed and Aquatics **DC 1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity **Forested Vegetation** **DC 3**. The plan area supports a diversity of successional stages that is ecologically resilient and sustainable. The location and abundance of size classes fluctuate over time as forests develop, are influenced by disturbances, and may be limited by site productivity and species composition. The range of desired conditions allows for variations in the mix of structural stages to respond to potential changes in climate. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales. **DC 4.** The plan area supports a range of forested vegetation densities across the landscape that is resilient and sustainable. Table 7 (Draft Revised Plan) displays the desired condition ranges for the percent of each broad potential vegetation type in each density class. The range of desired conditions allows for variations in the mix of density classes across the landscape to respond to potential changes in climate. Low-density vegetation conditions provide resilience to drought stress, fires, and insect and disease outbreaks. Desired condition ranges for each broad potential vegetation type (BPVT) apply at both the forestwide and geographic area scales. **Carbon** **DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates. **Recreation** Developed recreation site locations and seasons of use respond to or anticipate potential climate changes that may affect the timing, quantity, and duration of water flows, snow levels and snow elevation changes, impacts to fish and wildlife habitats, changes in vegetative conditions, and the extension of seasonal recreation use.	**Climate Change (CC)** **Goal CC-1**. For oil and gas activities, reduce greenhouse gas emissions on a unit-production basis. **Goal CC-2**. Evaluate the observed and anticipated ling-term dynamic of climate change and reduce greenhouse gas emissions from projects when feasible. **Goal CC-3.** Provide for diverse, healthy ecosystems that are resilient to stressors, such as climate change. **Goal CC-4.** Provide for flexible, adaptable management that allows for timely responses to changing climatic conditions. **Goal CC-5.** Maintain or improve the ability of the Bureau of Land Management lands to reduce (sequester) atmosphere greenhouse gases.

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	Not applicable. Special designations that do not occur near National Forest System lands

Miles City Field Office, Montana

The Miles City Field Office manages lands adjacent to the Custer Gallatin National Forest near the Ashland Ranger District and Montana units of the Sioux Ranger District.

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Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts. **Carbon DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates.	**Air Resources (see end of table for Climate)** **Goal 1.** Maintain or enhance air quality and air quality related values (AQRVs) in the planning area and at sensitive areas (for example, Class I areas) in and near the planning area. **Goal 4.** Provide for flexible, adaptable management that allows for timely responses to changing climatic conditions. **Goal 5.** Maintain or improve the ability of Bureau of Land Management-administered lands to reduce (sequester) atmospheric greenhouse gases.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized. **DC-3.** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions. **DC-4.** Coarse woody debris (downed wood greater than or equal to 3 inches diameter) is present across the forested landscape, and is variable in amount, size, species and stages of decay across the forest both spatially and over time. Low amounts are found on warm, dry potential vegetation types, in developed recreation areas, and other areas where the concern for fire impacts	**Soils** **Goal 1.** Maintain or improve the chemical, physical, and biotic properties of soil.

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to values at risk is elevated. Higher amounts occur in the cold and cool, moist potential vegetation types as well as riparian areas.	
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels.	**Water Resources** **Goal 1.** Maintain or enhance the beneficial uses of surface water and groundwater. **Riparian and Wetland Areas** **Goal 1.** Manage riparian and wetland systems to be healthy, diverse, and functional. **Fish, Aquatic and Wildlife Habitat, Including Special Status Species** **Goal 1.** Provide habitats for well-distributed and diverse fish and wildlife. **Goal 2.** Maintain, enhance, or restore habitats for special status fish and wildlife species to ensure Bureau of Land Management actions do not contribute to the need to list these species.
Vegetation **Multiple Desired Conditions for forested and other vegetation types.** **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present. **Greater sage-grouse** **DC 1.** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover,	**Vegetation** **Goal 1.** Manage vegetation communities to restore, maintain, or enhance vegetation community health, connectivity, resiliency, and diversity.

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herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood-rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures.	
Invasive Species **DC-1.** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the forest. Where invasive species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative *species* occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems. **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Invasive Species** **Goal 1.** Manage for healthy native plant communities and aquatic systems by reducing, preventing expansion of, or eliminating the occurrence of invasive species.
Fire and Fuels **DC 1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire.	**Wildland Fire Management and Ecology** **Fuels Management/Prescribed Fire** **Goal 1.** Provide for firefighter and public safety by reducing hazardous fuel loads (risk) within the wildland urban interface. **Goal 2.** Protect or sustain the ecological health and function of fire-adapted ecosystems; reduce the risk of high severity wildfires to watersheds and ecosystems; and benefit, protect, maintain, sustain, and enhance natural and cultural resources. **Wildland Fire Management** **Goal 1.** Place public and firefighter safety first in any wildfire management action. **Goal 2.** Manage wildfire (unplanned ignitions) for the protection of public health, safety, property, and resource values while implementing cost-containment strategies that result in minimum suppression costs. **Goal 3.** Use a naturally occurring event such as wildfire to enhance vigor, vegetation production, reduce hazardous fuels, and maintain a desired mix of seral stages within the following communities: sagebrush (silver and Wyoming species), forest and grasslands, riparian and wetland areas, and native species communities. **Goal 4.** Create and maintain landscape-level fuel breaks using fire management, grazing, range improvements, transportation corridors, terrain features, and vegetation communities to provide suppression opportunities. **Objective 1.** Identify areas where fire as a resource benefit could achieve the resource management goals.

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Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **DC-4.** Habitat conditions provide security and refuge for wildlife to escape from stresses and threats, while still meeting basic needs such as feeding breeding, sheltering and movement. **DC-5.** Landscape patterns throughout the planning area provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC-6.** Habitat conditions within and near Custer Gallatin boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries. **Greater sage-grouse** **DC 1.** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood-rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures.	**Fish, Aquatic and Wildlife Habitat, Including Special Status Species** **Goal 1.** Provide habitats for well-distributed and diverse fish and wildlife. **Goal 2.** Maintain, enhance, or restore habitats for special status fish and wildlife species to ensure Bureau of Land Management actions do not contribute to the need to list these species

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Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Goal 1**. The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions. **Minerals DC 7.** Geologic hazards (such as, erionite/offretite, naturally occurring radio-active materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.	**Social and Economic Consideration** **Goal 1.** Provide for a diverse array of stable economic opportunities in an environmentally sound manner. **Goal 2.** Identify and correct or revise, to the extent possible, disproportionate negative effects on minority or low-income populations in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. **Goal 3.** Protect humans and the environment from exposure to hazardous materials.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Cultural Resources** **Goal 1.** Identify, preserve, and protect significant cultural resources on Bureau of Land Management-administered lands. **Goal 2.** Ensure cultural resources are available to present and future generations for appropriate uses such as scientific studies, public education and traditional cultural values.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Livestock Grazing** **Goal 1.** Provide forage for livestock grazing consistent with other resources and uses as part of an ecologically healthy system consistent with multiple use and sustained yield. **Goal 2.** Utilize grazing activities to manage for the biological integrity of terrestrial and aquatic ecosystems to sustain vegetation, fish, and special status species, while providing for multiple uses of Bureau of Land Management-administered lands. **Goal 3.** Provide opportunities for livestock grazing to support and sustain local communities while providing habitat for native plants, fish, and animals

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	(including special status species) and meeting or exceeding proper functioning condition (PFC) for uplands and riparian areas and Montana's air and water quality standards.
Vegetation Multiple **Desired Conditions** for **forested and other vegetation** types. **VEGNF DC 1**. Native plant communities are self-sustaining relative to site capability and potential, and support a mosaic of diverse seral stages, life forms and age classes. **Timber** **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **Carbon DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates.	**Forestry and Woodland Products** **Goal 1.** Promote healthy, resilient, and vigorous forestland communities. Forestland mosaics are managed for diversity of stand structures and species components that complemented other resource values, including (but not limited to) recreation, wildlife, rangelands, fisheries, and wood production.
Energy, Minerals and Geological Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 5.** Opportunities for rock hounding and other types of noncommercial mineral collecting (for example, for scientific, research, or educational purposes) are available. **DC 6.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) are available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity.	**Minerals** **Goal 1.** Provide opportunities for mineral use in an environmentally responsible manner. **Goal 2.** Provide opportunities for renewable energy development, especially for wind energy, while avoiding or minimizing adverse impacts on wildlife, cultural, visual, and other resource values. **Paleontological Resources** **Goal 1.** Identify, preserve, and protect significant paleontological resources on Bureau of Land Management-administered lands. **Goal 2.** Ensure that paleontological resources are available to present and future generations for appropriate uses such as scientific studies and public education. **Renewable Energy** **Goal 1.** Provide opportunities for the development of renewable energy resources (from sources such as wind and solar) while minimizing adverse impacts on other resource values

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Recreation **DC 5.** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species. **Developed Recreation** **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands. **Dispersed Recreation** **DC 1.** Dispersed opportunities are available across the forest for a wide variety of users where compatible with environmental resources, recreation settings and social interactions such as user conflicts and crowding.	**Recreation** **Goal 1.** Provide a diverse array of quality resource-based recreation opportunities while protecting and interpreting the resource values, providing educational opportunities, minimizing recreational use conflicts, and promoting public safety. **Goal 2.** Establish, manage, and maintain quality recreation sites and facilities to balance public demand and protection of public land resources. **Goal 3.** Manage recreation opportunities and experiences to provide a sustained flow of local economic benefits and protect non-market economic values.
Recreation (the forest plan is not a travel management plan) **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.	**Travel Management and Off-Highway Vehicle Use** **Goal 1.** Provide a balanced approach to travel management that offers a sustained flow of local economic benefits and minimizes or mitigates user conflict, safety concerns, and resource impacts while taking into consideration the unique attributes and values of the various travel management planning areas.
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills, and grasslands.	**Visual Resources** **Goal 1.** Maintain scenic qualities consistent with the management of resources and uses.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 2.** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands. **Land Uses** **DC 2.** Energy corridors throughout the planning area improve the delivery of electricity, oil, and gas, and enhance the western electric transmission grid by	**Lands and Realty** **Goal 1.** Provide public lands, interests in land, and authorizations for public and private uses while maintaining and improving resource values. **Goal 2.** Adjust public land and mineral ownership to acquire significant resources and consolidate surface or mineral estates to improve management efficiency and accessibility, obtain special designation area inholdings, and enhance significant recreational values. **Goal 3.** Use withdrawal actions with the least restrictive measures and minimum size necessary to accomplish the required purposes of the withdrawal.

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improving reliability, reducing congestion, and contributing to the national electrical grid. **Goal 3.** The Forest Service coordinates with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.	**Goal 4.** Strive to increase and diversify the nation's sources of both traditional and alternative energy resources, improve the energy transportation network, and ensure sound environmental management. **Goal 5.** Effects of infrastructure projects, including siting, will be minimized using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Water **DC 1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity **Forested Vegetation** **DC 3**. The plan area supports a diversity of successional stages that is ecologically resilient and sustainable. Table 7 (Draft Revised Plan) represents the desired condition of successional stages (estimated by size classes) across the landscape. The location and abundance of size classes fluctuate over time as forests develop, are influenced by disturbances, and may be limited by site productivity and species composition. The range of desired conditions allows for variations in the mix of structural stages to respond to potential changes in climate. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales. **DC 4.** The plan area supports a range of forested vegetation densities across the landscape that is resilient and sustainable. Table 7 (Draft Revised Plan) displays the desired condition ranges for the percent of each broad potential vegetation type in each density class. The range of desired conditions allows for variations in the mix of density classes across the landscape to respond to potential changes in climate. Low-density vegetation conditions provide resilience to drought stress, fires, and insect and disease outbreaks. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales. **Carbon** **DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates. **Recreation**	**Climate (see beginning of table for Air Resources)** **Goal 2.** Reduce greenhouse gas (GHG) emissions when feasible. **Goal 3.** Evaluate the observed and anticipated long-term dynamic of climate change and minimize the impact of GHGs from s to the degree practicable and reasonably foreseeable.

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Developed recreation site locations and seasons of use respond to or anticipate potential climate changes that may affect the timing, quantity, and duration of water flows, snow levels and snow elevation changes, impacts to fish and wildlife habitats, changes in vegetative conditions, and the extension of seasonal recreation use.	
	Not applicable: special designations not near National Forest System lands – National Trails (Lewis and Clark Trail) – Special recreation management areas (SRMAS), extensive recreation management areas (ERMAS) and public lands not designated – Areas of critical environmental concern – Lands with wilderness characteristics, wilderness study areas

South Dakota Field Office, South Dakota

The South Dakota Field Office manages some scattered parcels adjacent to the Custer Gallatin National Forest in Harding County, South Dakota.

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Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Air Quality** **Goal 1.** Ensure Bureau of Land Management authorizations and management activities protect the local quality of life and sustain economic benefits by complying with tribal, local, county, state, and federal air quality regulations, requirements, and implementation plans. **Goal 2.** Meet Federal and State air quality standards.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **DC-2.** Areas of highly erodible soils or land-types with high mass failure potential are not destabilized. **DC-3.** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions.	**Soils** **Goal 1.** Manage uses to minimize soil erosion, sedimentation to water sources, and compaction; and to maintain surface soil water infiltration based on site-specific conditions. **Goal 2.** Maintain, improve, or restore soil health and productivity while supporting multiple use management. **Goal 3.** Soils are stable and provide for capture, storage, and release of water, appropriate to soil type, climate, and land form.

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DC-4. Coarse woody debris (downed wood greater than or equal to 3 inches diameter) is present across the forested landscape, and is variable in amount, size, species and stages of decay across the forest both spatially and over time. Low amounts are found on warm, dry potential vegetation types, in developed recreation areas, and other areas where the concern for fire impacts to values at risk is elevated. Higher amounts occur in the cold and cool, moist potential vegetation types as well as riparian areas.	**Goal 4.** Soils are productive and support vegetation that provides forage, wildlife habitat, watershed protection, and esthetic characteristic based on soil type.
Watershed and Aquatics. Multiple Desired Conditions, including: **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels.	**Water** **Goal 1.** Maintain or improve the chemical, physical, and biological integrity of water resources to protect designated beneficial uses and achieve water quality standards and guidelines. **Goal 2.** Improve watershed function to minimize erosion and accelerated runoff to streams. **Goal 3.** Maintain or improve water quality for municipal, industrial, agricultural, biological, recreational and residential purposes. **Goal 4.** Maintain or improve stream channel shape, form, and function within the natural range of variability to allow for hydrological processes that can fully support beneficial uses. **Goal 5.** Maintain existing or acquire new water rights on Bureau of Land Management lands to ensure water availability for multiple use management while adhering to the State of South Dakota water rights, and other water quality related laws and regulations. **Goal 6.** Protect ground and surface water quantity and quality. **Goal 7.** Meet water quality standards without adversely affecting prior existing water rights and uses and protect beneficial uses of water. **3.2.11 Fish and Aquatics** **Goal 1.** Ensure that aquatic habitat is of suitable quality to support a diversity of plant and animal communities. **Goal 2.** Promote public awareness, appreciation, and fisheries conservation, management and ecology.
Vegetation **Multiple Desired Conditions for forested and other vegetation types.** **At Risk Plant Species DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Vegetation Communities** **Goal 1.** Manage public lands to provide plant communities that support the integrity of the ecological processes (water, energy, and nutrient cycles) and to provide forage, watershed protection, and a variety of wildlife habitat. **Goal 2.** Public lands meet the Dakotas Standards for Rangeland Health.

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	Goal 3. A variety of habitat is present with a diverse assemblage of native plant communities indicative of the Northern Great Plains. **Goal 4.** Native plants dominate the planning area and are resistant to invasive plants, noxious weeds, and invasive pests. **Goal 5.** The abundance of woody vegetation is maintained or improved on those riparian sites that have the potential to support woody vegetation. **Goal 6.** Stands of oak, aspen, box elder, ash and other hardwoods are maintained and a variety of age classes are present. **Goal 7.** In Greater sage-grouse priority habitat management areas, the desired condition is to maintain all lands ecologically capable of producing sagebrush (but no less than 70%) with a minimum of 15% sagebrush cover or as consistent with specific ecological site conditions. The attributes necessary to sustain these habitats are described in Interpreting Indicators of Rangeland Health (Bureau of Land Management Tech Ref 1734-6).
Invasive Species **DC-1.** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the forest. Where invasive species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative *species* occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems. **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Noxious Weeds and Other Invasive Non-Native Species** **Goal 1.** Minimize infestation of noxious weeds. **Goal 2.** Reduce existing acres infested by invasive plants and noxious weeds through integrated pest management treatment methods including restoration and elimination of new infestations through early detection and rapid response. **Goal 3.** New infestations are not common and existing infestations are declining across the landscape **Goal 4.** Invasive plants and noxious weeds are not leading to a decrease in acres that are meeting standards for rangeland health. **Invasive Terrestrial Animals and Insect Species** **Goal 1.** Manage invasive terrestrial animal and insect species, and state and locally declared pests. Reduce acres or density of infestations by invasive species through prevention, early detection and rapid response, and provide education opportunities for public land users. **Goal 2.** Infestations are not common across the landscape. **Invasive Aquatic Species** **Goal 1.** Keep the aquatic environment free from invasive aquatic species. Prevent the introduction of invasive species into the aquatic environment through education of public land users on prevention, early detection, rapid response, control, management, and restoration.

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	Goal 2. All lentic (lakeshore/wetland) and lotic (river/stream) areas remain free from invasive aquatic species.
Fire and Fuels **DC 1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. Please refer to the glossary for the definition of fire regimes. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire. **Goal 1.** The Custer Gallatin National Forest works with community leaders, service providers, business owners, homeowners and permittees who are invested in or adjacent to the forest to provide education about wildfire risk and that wildland fire is an ecological process. **Goal 2.** The Custer Gallatin National Forest coordinates fire management actions with state, local, and adjacent Federal agencies. Opportunities to manage fire are expanded across the planning area through coordination and collaboration.	**Fire Management and Ecology** **Goal 1.** Manage wildfire and fuels for the protection of public health, safety, property, and resource values, emphasizing firefighter and public safety as the single overriding priority. **Goal 2.** Manage hazardous fuels in areas of urban and industrial interface to reduce potential loss due to severe wildfire. **Goal 3.** Maintain or improve desired mix of seral stages within vegetation communities including forest and woodlands, grasslands, shrublands, and riparian/wetlands. **Goal 4.** Manage vegetation communities through cooperative efforts by restoring and maintaining natural fire regimes and frequency to the landscape, where appropriate. **Goal 5.** Maintain and promote partnerships with the public and interagency cooperators to develop and strengthen coordination of all fire management activities across jurisdictional boundaries. **Goal 6.** Utilize integrated management techniques unless otherwise restricted (defined as prescribed fire, mechanical, chemical, or biological, followed by desired seeding) to reduce fuels and to protect high priority areas or resource values. **Goal 7.** Burned areas pose minimal threat to public safety, property, cultural resources, and/or ecological function.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Wildlife** **Goal 1.** Ensure that native wildlife species are provided habitat of sufficient quality and quantity to enhance biological diversity and sustain their economic, social and ecological values. **Goal 2.** Provide habitat and forage to support wildlife with consideration of South Dakota Wildlife Action Plan game management goals and the Northern Great Plains Joint Venture Program. **Goal 3.** Improve the resilience of wildlife habitats to protect wildlife communities from stressors and events such as severe wildfire and climate change **Goal 4.** Movement of big game species between habitats will be facilitated.

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DC-4. Habitat conditions provide security and refuge for wildlife to escape from stresses and threats, while still meeting basic needs such as feeding breeding, sheltering and movement. **DC-5.** Landscape patterns throughout the planning area provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC-6.** Habitat conditions within and near Custer Gallatin boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries.	**Goal 5.** Ensure that a full spectrum of biological communities' habitats and their ecological processes are present. **Goal 6.** Ensure that populations of native plants and animals are well distributed across the landscape. **Goal 7.** Provide suitable habitat condition to allow for movement between blocks of habitat and seasonal and specialized habitats on a local and landscape scale. **Goal 8.** Maintain or improve specialized habitats on a local and landscape scale.
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities.	**Social and Economic** **Goal 1.** Provide opportunities for economic sustainability at the national, regional and local level. **Goal 2.** Provide for a diverse array of opportunities that result in social benefits for local residents, businesses, recreationists, visitors, interested citizens and future generations, while minimizing the negative social effects.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices.	**Cultural Resources** **Goal 1.** Identify, preserve, and protect significant cultural resources and ensure that they are available for appropriate uses by present and future generations. **Goal 2.** Seek to reduce imminent threats and resolve potential conflicts from natural or human-caused deterioration or potential conflict with other resource uses by identifying

Draft Revised Plan Components	South Dakota Field Office 2015 RMP Components
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Livestock Grazing** **Goal 1.** Manage for a sustainable level of livestock grazing while meeting or progressing toward the Dakotas Standards for Rangeland Health recognizing the ecological benefits of moderate levels of large animal grazing in the Great Plains. **Goal 2.** Manage livestock grazing to provide economic opportunities in the planning area.
Timber **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **DC 4.** Timber harvest contributes to maintaining regional timber harvesting and processing infrastructure. **Carbon DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates.	**Forest and Woodland Products** **Goal 1.** Manage public forest and woodlands to provide plant communities that support the integrity of the ecological processes (water cycle, energy cycle, and nutrient cycle) and improve or maintain wildlife habitat considering economically efficient methods. **Goal 2.** Forests and woodlands support diverse vegetative communities as indicated by wildlife habitat goals. Forests and woodlands will be managed for ecological resiliency, as indicated by fuels and fire management goals. Forest and woodland treatments may result in vegetative products being available for public or other use depending on local market demands **Goal 3.** Manage forest resources to improve resilience to severe events and maintain and enhance their ability for the long-term sequestration of carbon.
Energy, Minerals and Geologic Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use. **DC 2.** Renewable energy resources (geothermal, hydropower, solar and wind energy) are available in consideration of other resource values which may be present. Following renewable energy activity, impacted areas are in a productive capacity. **DC 3.** Abandoned mines lands and areas impacted by past management activities are returned to a state of site condition comparable to pre-mineral activity and provide comparable form and function based on site potential. **DC 4.** Environments in abandoned mines remain unaltered except where necessary to protect associated natural resources, such as wildlife as well as human health and safety concerns. **DC 5.** Opportunities for rock hounding and other types of noncommercial mineral collecting (for example, for scientific, research, or educational purposes) are available.	**Minerals** **Goal 1.** Manage minerals to provide an opportunity for local economic benefits, while protecting the integrity of other resources. **Goal 2.** Minerals are developed while wildlife, cultural resources, air and water quality, and other resource values are maintained. **Goal 3.** As mineral development is completed, surface areas are restored similar to pre-existing conditions. **Goal 4.** Priority will be given to leasing and development of fluid mineral resources, including geothermal, outside of priority habitat management areas and general habitat management areas. **3.2.24 Renewable Energy Resources** **Goal 1.** Make lands available for renewable energy development, consistent with goals to manage other resources. **Goal 2.** Provide opportunities for renewable energy development, especially for wind energy, while avoiding or minimizing adverse impacts on wildlife, cultural, visual, and other resource values.

Draft Revised Plan Components	South Dakota Field Office 2015 RMP Components
DC 6. Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia. **DC 7.** Geologic hazards (such as, erionite/offretite, naturally occurring radio-active materials, mass wasting, floods, sinkholes, etc.) do not pose associated risks to public health and safety, facilities, and infrastructure.	**Goal 3.** Restore areas to near natural conditions when renewable energy development is decommissioned. **Public Safety. Hazardous Materials** **Goal 1.** Mitigate threats and reduce risks to the public and environment from hazardous materials. **Goal 2.** Healthy public lands. **Paleontological Resources** **Goal 1.** Preserve and enhance paleontological resources on public land. **Goal 2.** Provide opportunities for scientific and recreational uses of paleontological resources within the planning area. **Goal 3.** Significant paleontological resources will be identified and preserved for their scientific values. **Goal 4.** Educational and recreational opportunities will be enhanced for the enjoyment of the public. **Public Safety; Abandoned Mine Lands (AML)** **Goal 1.** Reclaim abandoned mine lands sites on public land to improve water quality, plant communities, and diverse fish and wildlife habitat. **Goal 2.** Reduce and/or eliminate risks to human health from hazardous mine openings and other physical and chemical safety hazards. **Goal 3.** Protect historic resources and wildlife habitat commonly associated with AML sites. **Goal 4.** Remove the greatest risks, preserve bat habitat, restore the environment, and preserve representative or significant cultural resources.
Infrastructure, Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.	**Travel and Transportation** **Goal 1.** Manage transportation and access to provide for use and enjoyment of the public lands while protecting resource values and providing for user safety. **Goal 2.** Access is available to larger blocks of Bureau of Land Management-administered surface lands. **Goal 3.** Manage transportation network to enhance a variety of uses of public lands.

Draft Revised Plan Components	South Dakota Field Office 2015 RMP Components
DC 2. The transportation system is connected to state, county, local public, and other Federal roads and trails. The transportation system provides reasonable access to facilities, private in-holdings, and infrastructure (for example, buildings, recreation facilities, municipal water systems, dams, reservoirs, range improvements, electronic and communication sites, and utility lines).	
Recreation **DC 5.** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species. **Developed Recreation** **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands. **Dispersed Recreation** **DC 1.** Dispersed opportunities are available across the forest for a wide variety of users where compatible with environmental resources, recreation settings and social interactions such as user conflicts and crowding.	**Recreation** **Goal 1.** Provide for a range of recreational opportunities while minimizing adverse impacts on other resources. **Goal 2.** Encourage community partnerships with Bureau of Land Management for the purpose of improving the recreational opportunities in response to the needs of visitors and local communities.
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands.	**Visual Resources Management (VRM)** **Goal 1.** Public lands provide natural appearing landscapes for recreational opportunities.
Land Stats and Ownership **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **OBJ 1.** Every decade, acquire between one and five new roads or trail rights-of-way that are needed as high-priority access or would fill a gap in existing access to public lands.	**Lands and Realty** **Goal 1.** Address needs of industry, utilities, the public, or government entities for land use authorizations (rights-of-way leases and permits) while minimizing adverse impacts on other resource values. **Goal 2.** Locate new rights-of-way facilities adjacent to existing rights-of-ways to the extent practical. **Land Tenure** **Goal 1.** Retain public lands with high resource values in public ownership.

Draft Revised Plan Components	South Dakota Field Office 2015 RMP Components
	Goal 2. Adjust land ownership to improve public land pattern and management efficiency. **Goal 3.** Acquire lands that enhance public access, high resource values and meets public and community needs. **Goal 4.** Access is available to larger blocks of the Bureau of Land Management-administered surface lands at locations identified internally or from the public and users. **Goal 5.** Achieve a more management efficient and consolidated public land pattern. **Goal 6.** Effects of infrastructure projects, including siting, will be minimized using the using the best available science, updated as monitoring information on current infrastructure projects becomes available.
Water **DC 1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **Forested Vegetation** **DC 3**. The plan area supports a diversity of successional stages that is ecologically resilient and sustainable. Table 7 (Draft Revised Plan) represents the desired condition of successional stages (estimated by size classes) across the landscape. The location and abundance of size classes fluctuate over time as forests develop, are influenced by disturbances, and may be limited by site productivity and species composition. The range of desired conditions allows for variations in the mix of structural stages to respond to potential changes in climate. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales. **DC 4.** The plan area supports a range of forested vegetation densities across the landscape that is resilient and sustainable. Table 7 (Draft Revised Plan) displays the desired condition ranges for the percent of each broad potential vegetation type in each density class. The range of desired conditions allows for variations in the mix of density classes across the landscape to respond to potential changes in climate. Low-density vegetation conditions provide resilience to drought stress, fires, and insect and disease outbreaks. Desired condition ranges for each broad potential vegetation type apply at both the forestwide and geographic area scales.	**Climate** **Goal 1**. Evaluate the observed and anticipated long-term dynamic of climate change and minimize the impact of greenhouse gases (GHG) from projects to the degree practicable and reasonably foreseeable. **Goal 2.** Provide for diverse, healthy ecosystems that are resilient to stresses such as climate change. **Goal 3**. Provide for flexible, adaptable management that allows for timely responses to changing climatic conditions. **Goal 4**. Maintain or improve the ability of Bureau of Land Management lands to reduce (sequester) atmospheric greenhouse gases.

Draft Revised Plan Components	South Dakota Field Office 2015 RMP Components
Carbon **DC 1.** Carbon storage and sequestration potential is sustained by biologically diverse and resilient forests, woodlands, shrublands, and grasslands that are adapted to natural disturbance processes and changing climates. **Recreation** Developed recreation site locations and seasons of use respond to or anticipate potential climate changes that may affect the timing, quantity, and duration of water flows, snow levels and snow elevation changes, impacts to fish and wildlife habitats, changes in vegetative conditions, and the extension of seasonal recreation use.	
	Not applicable Special designations; the designations are not near national forest system lands; recommended withdrawals

National Park Service, Yellowstone National Park

Yellowstone National Park's 2014 Foundation Document provides basic guidance for planning and management decisions. Its core elements include the park's purpose, significance, fundamental resources and values, interpretive themes, and special mandates and administrative commitments. Of these elements, the fundamental resources and values are most analogous to the elements of a national forest plan. Fundamental resources and values are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance.

Draft Revised Plan Components	Fundamental Resources and Values
Distinctive Roles and Contributions The Montane Ecosystem, except the Pryor Mountains, also encompasses the Custer Gallatin's portion of the Greater Yellowstone Area, the largest nearly intact ecosystem in the lower 48 States. Native animals, including grizzly bears, gray wolves, and bison, roam the Madison, Henrys Lake, Gallatin, Absaroka, and Beartooth Mountains. Whitebark pine, a candidate species for Federal listing under the Endangered Species Act, is found at higher elevations. Whitebark pine in the Greater Yellowstone Area exhibits lower blister rust infection than other ecosystems, such as the Northern Continental Divide. The Custer Gallatin National Forest cooperates with other agencies in the Greater Yellowstone	**One of the largest, mostly intact temperate ecosystems in the world.** The park is the core of the Greater Yellowstone Ecosystem, which is one of the largest mostly intact temperate ecosystems in the world. The park preserves environmental integrity, which allows natural processes to shape ecosystem functions, resulting in outstanding wilderness character. Bears, wolves, bison, trumpeter swans, cutthroat trout, and elk are some of the many wildlife species that inhabit Yellowstone's vast landscape.

Draft Revised Plan Components	Fundamental Resources and Values
Coordinating Committee to coordinate land management on over 15 million acres of federal land in the Greater Yellowstone Area. **Vision for the Custer Gallatin National Forest** The Custer Gallatin National Forest is a widely diverse landscape that sustains abundant native plants and animals, clean air and water, and productive soils, enhancing the quality of life for those who use and depend on the forest for life-enriching activities and livelihoods. Ecological services and multiple use products derived from this landscape are outcomes of management practices that are sustainable, enhance resiliency and adapt to societal and technological changes.	
Water. Multiple Desired Conditions, including: **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.	**Hydrologic systems.** Yellowstone's rivers, lakes, and underground waters are fundamental to the ecosystem and sustaining its wildlife, as well as the geothermal system. The park contains the headwaters of the Snake River and is home to one of the largest high elevation lakes in North America.
Cultural and Historic Resources **DC-1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC-2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history.	**Enduring connection to Yellowstone.** Yellowstone's cultural resources, protected since 1872, represent one of the West's most pristine material records, spanning 11,000 years, including ongoing connections to the park's 26 traditionally associated tribes. The park's museum, library, and archive collections; archeological sites; and historic buildings, landscapes, and structures represent and convey Yellowstone's lasting cultural and natural history heritage.

Draft Revised Plan Components	Fundamental Resources and Values
Energy, Minerals and Geologic Areas of Interest **DC-1.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.	**Dynamic geologic processes and features.** Yellowstone's dramatic landscapes, including the Grand Canyon of the Yellowstone, Overhanging Cliff, and Obsidian Cliff, were shaped by volcanism, glaciations, erosion, and seismic activity. These processes have resulted in exposed and hidden geology and produce a varied landscape that provides unique habitat for many species.
Recreation **DC-2.** Recreation opportunities promote long-term physical and mental health of the public by encouraging opportunities to connect with nature while pursuing adventure and by instilling a culture of stewardship and appreciation. **Visitor Education and Interpretation** **DC-1.** Interpretation and education products enhance visitors' understanding and appreciation for the rich natural and cultural resources of the forest, and builds support for public lands. **DC-2.** Visitor information is readily available for pre-visit information gathering in a variety of forums and kept up to date so that the public may be informed and educated through modern technology about current Forest Service related policies, activities, services, and issues.	**A park for the people.** Park staff, artists, educational media, visitor centers, trails, boardwalks, and viewing areas provide park and virtual visitors with a wide variety of opportunities to enjoy the park, inspire people's quest for knowledge, build a deeper understanding of Yellowstone's global significance, and motivate preservation and stewardship of the park.
Scenery **DC-1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands. **Designated Wilderness** **DC-1**. Key qualities of wilderness character for a given area including untrammeled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated.	**A "wild" experience.** Yellowstone's vast western landscape is unlike any other. Visitors have opportunities to experience natural wonders, unspoiled scenery, the smell of geothermal features, natural sounds such as the howling of wolves and the thundering of the Lower Falls, solitude, unpolluted air, dark night skies, and Yellowstone's wildness.
No Comparable Plan Language	**Geothermal wonders.** Yellowstone contains an unparalleled collection of over 10,000 thermal features, including geysers, hot springs, mud pots, and fumaroles, which are fed by underground geothermal and hydrothermal systems. They provide habitats for microorganisms and other wildlife, and unique opportunities for research.

U.S. Forest Service

The purpose of the Forest Service Land and Resource Management Plans (forest plans) is to provide guidance for resource management activities on a national forest. The review includes the Beaverhead-Deerlodge (2009), Caribou-Targhee (1997), and Shoshone (2015) Forest Plans. The forest plan goals or desired conditions, depending on the plan, are most closely aligned with the draft revised plan desired conditions and goals. A compatibility review is not provided for the Helena – Lewis and Clark National Forest because the forest is undergoing plan revision.

Beaverhead-Deerlodge National Forest, Montana

The Beaverhead – Deerlodge National Forest manages lands adjacent to the Custer Gallatin National Forest on the western border of the forest.

Draft Revised Plan Components	Beaverhead – Deerlodge National Forest 2009 Forest Plan Components
Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Air Quality** **Air Quality Goal.** Air quality is maintained within the standards set by Federal and State agencies and by the Montana Airshed Group's Memorandum of Agreement and State Implementation Plan. **Smoke Management Goal:** A variety of management tools, (including prescribed fire and appropriate management response) are used to help manage vegetation to reduce potential smoke.
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits.	**Soils** **Soil Productivity Goal**: Soil productivity is maintained or restored.
Watershed and Aquatics **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation.	**Aquatic Resources** **Watersheds:** Watersheds are maintained to ensure water quality, timing of runoff, and water yields necessary for functioning riparian, aquatic ecosystems, wetlands, and to support native aquatic species reproduction and survival. Watershed restoration projects promote long-term ecological integrity of ecosystems, conserve genetic integrity of native species, and contribute to attainment of desired stream function and support beneficial uses (IN 1). **Fish Key Watershed:** Populations of bull trout and westslope cutthroat trout exhibit numbers, life histories, age classes, recruitment levels, and reproductive characteristics representative of historic conditions.

Draft Revised Plan Components	Beaverhead – Deerlodge National Forest 2009 Forest Plan Components
DC-6. In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (for example, bankfull width, depth, entrenchment ratio, slope and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-8.** Municipal watersheds provide clean drinking water for those downstream communities that derive their principal water from them. **DC-10.** Riparian vegetation provides breeding, feeding and sheltering opportunities, as well as habitat connectivity and movement corridors for a wide range of terrestrial, semi-aquatic and avian wildlife species. **DC-11.** Instream and riparian habitat conditions in managed watersheds move towards conditions similar to those in reference watersheds (conditions such as, large woody debris recruitment, pool frequency and residual depth, width-to-depth ratios, stream shading and temperature, bank stability, etc.). **DC-12.** Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Riparian Management Zones (RMZs)** **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and	**Restoration Key Watershed:** Fish habitat, riparian habitat, and water quality are recovered to desired conditions developed through watershed assessments. **Watershed Restoration Projects:** Projects are designed and implemented to promote long-term ecological integrity of ecosystems, conserve the genetic integrity of native species, and contribute to attainment of desired stream function (WR-1). **Municipal Watersheds:** Site-specific criteria for managing municipal watersheds are developed, and degraded waters are restored to meet goals of the Clean Water Act and Safe Drinking Water Act. **Total Maximum Daily Loads (TMDLs):** Management actions are consistent with total maximum daily loads. Where waters are listed as impaired and total maximum daily loads and Water Quality Restoration Plans are not yet established, management actions do not further degrade waters. Water quality restoration supports beneficial uses. **Stream Channels:** Stream channel attributes and processes are maintained and restored to sustain natural desired riparian, wetland, and aquatic habitats and keep sediment regimes as close as possible to those with which riparian and aquatic ecosystems developed (IN 2). **Instream Flows:** Instream flows are secured to support functioning riparian and aquatic habitats, stable and effective stream function, and ability to route flood discharges (IN 3). **Floodplains:** The condition of floodplains, channels and water tables are maintained and restored to dissipate floods and sustain the natural timing and variability of water levels in riparian, wetland, meadow and aquatic habitats (IN 4). **Riparian Areas:** Riparian habitat, species composition, and structural diversity of native and desired non-native riparian plant communities are maintained or restored to (IN 5-6): • Provide an amount and distribution of woody debris characteristic of functioning aquatic and riparian ecosystems; • Provide adequate summer and winter thermal regulation for streams to support beneficial uses; • Provide bank stability to maintain rates of surface erosion, bank erosion, and channel migration which are characteristic of functioning aquatic and riparian ecosystems; • Effectively trap and store sediment, build stream banks and floodplains,

Draft Revised Plan Components	Beaverhead – Deerlodge National Forest 2009 Forest Plan Components
channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism. **DC-2.** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge and have an intact flow regime similar to historical flow patterns. **Invasive Species** **Goal 1.** Coordination and cooperation with Federal, State, and County agencies, Tribes, non-government organizations, permittees, and adjacent landowners support integrated pest management including invasive species prevention, early detection and rapid response, control and containment, restoration and rehabilitation, and inventory and monitoring activities. Aspects of the Beaverhead-Deerlodge Forest Plan goals are addressed in Custer Gallatin Forest Plan standards and guidelines.	and promote recovery after watershed disturbance. **Riparian Habitat:** Habitat to support viable, well distributed populations of native and desired non-native plant, invertebrate, and vertebrate aquatic- and riparian-dependent species are maintained or restored. Movement corridors within and between watersheds, where desired, are maintained or restored to provide aquatic-dependent species' habitat needs and maintenance of metapopulations (IN 8). Riparian and aquatic habitats necessary to foster the unique genetic fish stocks that evolved within the specific geo-climatic region are maintained or restored (IN 7). **Channel Integrity:** Stream channel function and water quality are maintained or restored to support designated beneficial uses on all reaches through management decisions, restoration projects or Best Management Practices as outlined in the Soil & Water Conservation Practices Handbook. **Aquatic Nuisance Species:** Introductions of aquatic nuisance species in riparian and aquatic habitats are prevented. Forest biologists work cooperatively with appropriate State and Federal agencies, or other stakeholders to reduce or eliminate impacts, where aquatic nuisance species are adversely affecting the viability of desired aquatic species. **Snow Courses, Telemetry Sites:** Established snow courses, snow pack telemetry sites, and precipitation gauges are protected. **Sensitive Aquatic Species:** Viable populations of sensitive aquatics species are maintained (R1 Sensitive Species list) by managing habitat. **Ungulate Impacts:** Wild ungulate impacts that prevent attainment of the desired stream function or adversely affect native fish and sensitive aquatic species are identified and addressed through cooperation with federal, tribal, and state wildlife management agencies (FW 3). **Agency Cooperation:** Adverse effects on native fish or sensitive aquatic species associated with habitat manipulation, fish stocking, fish harvest, and poaching are identified and addressed through cooperation with federal, tribal, and state fish management agencies (FW 4). **Leases, Rights-of-way, Easements:** Leases, permits, rights-of-way, and easements are issued to avoid effects that would prevent attainment of the desired stream function and avoid adverse effects on threatened and endangered aquatic species and adverse impacts to sensitive aquatic species.

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	Where the authority to do so was retained, existing leases, permits, rights-of – ways, and easements are adjusted to eliminate effects that would retard or prevent attainment of the desired stream function or adversely effect on threatened and endangered aquatic species and adverse impacts to sensitive aquatic species. Where adjustments are not effective, the activity is eliminated. Where the authority to adjust was not retained, existing leases, permits, right-of-way, and easements are negotiated with the lead agency to make changes to eliminate effects that would prevent attainment of the desired stream function, adversely affect threatened and endangered aquatic species, or adversely impact sensitive aquatic species. Priority for modifying existing leases, permits, right-of-way and easements would be based on the current and potential adverse effects on native fish and sensitive aquatic species, and the ecological value of the riparian resources affected (LH 3). **Acquisitions and Exchanges:** Land acquisition, exchange, and conservation easements are used to meet desired stream function and facilitate restoration of fish stocks and other species at risk of extinction (LH 4). **Livestock Grazing:** Grazing practices are designed to attain, or maintain, desired stream function (GM 1). **Mineral Operations:** Mineral operations minimize adverse effects to threatened and endangered fish species or adverse impacts to sensitive aquatic species (MM 1). **Mining Facilities:** Structures, support facilities, and roads are located outside RCAs (MM 2**).** **Roads:** Roads are designed, constructed, and maintained to meet desired stream function and avoid adverse effects to native fish and sensitive aquatic species (RF 2**).** **Transportation Atlas:** The Transportation Atlas addresses the following items (RF 2c**):** 1. Road design criteria, elements, and standards that govern construction and reconstruction. 2. Road management objectives for each road which include criteria for operation, maintenance, and management. 3. Season of use and type of vehicle. 4. Road condition surveys to identify annual and deferred maintenance needs

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	Stream Crossings: Culverts, bridges, and other stream crossings can accommodate a 100-year flood, including associated bedload and debris (RF 4). **Recreation Sites:** Developed sites, dispersed sites, and trails are designed, constructed, and maintained in a manner which achieves desired stream function (RM 1**).** **Water Drafting Sites:** Water drafting sites are located in a manner that does not retard or prevent the attainment of desired minimum stream flows and stream function or have adverse effects, on threatened and endangered aquatic species or adverse impacts to sensitive aquatic species (RA 5**).**
Vegetation Multiple Desired Conditions for forested, grassland, shrubland, woodland, riparian, alpine and sparse vegetation. **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present. **Invasive Species** **DC-2.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Vegetation** **Biodiversity:** A variety of disturbance processes are managed or allowed to occur that produce resilient vegetation communities able to sustain diversity in the face of uncertain future climate-influenced disturbances. Resilient vegetation communities will have a mosaic of species and age classes of trees, shrubs, grasses, and forbs for animal forage and cover, and perpetuate the diversity of plants and the microbial and insect communities upon which they are dependent. Old growth is managed on a forest wide basis and is well distributed. **Unique Habitats:** The trend toward an older forest is altered by increasing the younger age classes providing greater forest diversity in age classes. Stable or upward trends are achieved for declining or unique habitats. **Sensitive Plants:** Sensitive plant populations and their habitat are maintained or restored. Large core populations or fringe-of-range populations of sensitive plants are conserved in research natural areas, botanical special interest areas, or protected as populations in conservation strategies, or project design specifications (Scale - Populations). **Non-native Species:** The influx of persistent non-native species is minimized by using native plants, seed, and vegetative propagules for restoration work. **Pest Management:** Diagnosed pest problems are addressed with an integrated pest management approach, which allows monitoring, prevention,
Fire and Fuels **DC 1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to	**Fire Management Goals** **Safety:** Fire fighter and public safety is always recognized as the first priority for fire suppression. **Wildland Fire Response:** The full range of responses to wildland fire is available to meet social needs and to achieve ecosystem sustainability.

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infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire.	**Fuels Management:** A full range of fuels management activities is available to achieve ecosystem sustainability, including, economic, and social components. **Wildfire Hazard Reduction:** Effects of unplanned and unwanted wildfire are reduced by moving areas of condition class 2 and 3 to a condition class 1 for all fire regimes and by maintaining areas in condition class 1.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species. **DC-4.** Habitat conditions provide security and refuge for wildlife to escape from stresses and threats, while still meeting basic needs such as feeding breeding, sheltering and movement. **DC-5.** Landscape patterns throughout the planning area provide habitat connectivity for wildlife, particularly wide-ranging species such as medium to large carnivores and wild ungulates. Resulting habitat connectivity facilitates daily and seasonal movement, as well as long-range dispersal of wildlife to support genetic diversity, allowing animals to adapt to changing conditions over time. **DC-6.** Habitat conditions within and near Custer Gallatin boundaries provide structural and functional diversity, and are resilient to existing and predictable future stressors, thereby supporting natural movement patterns for a wide variety of species across administrative boundaries. **DC-6.** Human-related foods and attractants are unavailable to wildlife. Natural wildlife foraging patterns are the norm, while food conditioning and/or habituation of animals, and associated wildlife conflicts with humans do not occur. **Greater sage-grouse DC 1.** Greater sage-grouse habitat contains contiguous areas of native vegetation, including a variety of sagebrush-community compositions, little or no invasive species present, and variation in species	**Wildlife Habitat Goals** **Habitat:** Cover and forage for animals is provided by a mosaic of species and age classes of native trees, shrubs, grasses, and forbs. See Vegetation Goals for details. **Grizzly Bear Conflicts:** Conflicts between grizzly bears and humans or human activities in occupied grizzly bear habitat, are managed such that the removal of a bear is not necessary. **Connectivity:** Forest management contributes to wildlife linkages between landscapes, unless landscape isolation is determined to be beneficial. Linkage areas are those areas identified for large carnivores and ungulates through multi-agency coordination. Options may include, but are not limited to: • Maintaining Forest Service ownership at highway and road crossings, • Consolidating ownership at approach areas to highway and road crossings • substantiated by empirical data as necessary to facilitate wildlife movement, and • Providing secure habitat at the landscape scale to facilitate large animal movement. **Sage Grouse:** Sagebrush habitat supports sage grouse and pygmy rabbit populations by providing suitable sage grouse brood-rearing habitat on at least 40% of the sagebrush habitat within 18 kilometers of documented active or inactive sage grouse leks and the area mapped as potential pygmy rabbit habitat. **Wildlife Secure Areas and Connectivity:** Secure areas and connectivity for ungulates and large carnivores are provided, while recognizing the variety of recreational opportunities. **Grizzly Bear Security:** The Gravelly Landscape is maintained to achieve 60% or greater secure areas (Scale-Gravelly Landscape). **Wildlife Security:** Manage density of open motorized roads and trails by landscape year-round, except fall rifle big game season, to achieve levels at or below the following (Scale-Landscapes):

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composition, shrub cover, herbaceous cover and stand structure, to meet seasonal requirements for feeding, sheltering, breeding, nesting, and brood-rearing. Habitat connectivity is maintained, and flight paths are unimpeded by man-made structures. Aspects of the Beaverhead-Deerlodge Forest Plan goals are addressed in Custer Gallatin Forest Plan standards and guidelines.	**Elk Security:** Elk security is managed to provide quality elk habitat, provide a variety of recreational hunting opportunities, and provide support for Montana's fair chase emphasis. Manage open motorized road and trail density by Montana Fish Wildlife and Parks hunting units as of 2006 – on national forest lands during the fall rifle big game season, to achieve levels at or below the following: (Scale - Hunting Unit).
Social and Economic Sustainability **DC 2.** Sustainable levels of forest provided goods and services (for example, wilderness, fish and wildlife, livestock grazing, recreation opportunities and access, timber, energy resources, infrastructure, etc.) are available and contribute to the social, cultural and economic sustainability of local communities. The flow of these goods and services align with existing and emerging industries, growing and vulnerable populations, and overall economic conditions of forest communities. **Goal 1**. The Forest Service engages with local agencies, partner organizations and the public in ecosystem goods and services related planning, particularly in environmental justice communities where residents are more vulnerable to shifts in social and economic conditions.	**Economics and Social Values Goals** **Economy Contribution:** Contribute to the social and economic well-being of local communities by promoting sustainable use of renewable natural resources. Provide timber for commercial harvest, forage for livestock grazing, exploration and development opportunities for mineral resources, and recreation settings consistent with other resource goals. **Coordination:** Increase coordination with Federal, State, county and Tribal governments and strive for coordination and dialogue with a broad range of stakeholders. **Economic Efficiency:** The best available methods are used to contribute products to local communities while maximizing the ability to achieve forest targets.
Areas of Tribal Importance **Goal.** Cultural landscapes, sacred sites and other culturally significant areas identified by tribes provide tangible links to historically rooted beliefs, customs and practices and are maintained and managed through coordination with the appropriate tribes.	**American Indian Rights and Interests** Tribal Governments: Forest officials respect that tribal governments are sovereign nations with a strong interest in National Forest System land management.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Heritage Resources** **Heritage Resources Goal:** There is no loss of significant heritage resources. Significant means listed in the National Register of Historic Places, eligible for listing, or awaiting formal evaluation for National Register eligibility. **Heritage Program Goal:** A heritage program is developed and maintained that includes legal compliance, preservation, interpretation, public education, scientific research, partnerships, and tribal consultation.

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Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Livestock Grazing** **Grazing Opportunities Goal:** Sustainable grazing opportunities are provided for domestic livestock from lands suitable for forage production. **Forage Use Goal:** Use of forage by domestic livestock will maintain or enhance the desired structure and diversity of plant communities on grasslands, shrub lands, and forests. Use will be managed to maintain or restore riparian function as defined in the allotment management plan.
Timber **DC 1.** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also sustaining ecosystem health. **DC 2.** Lands suitable for timber production are resistant to natural disturbances, thereby minimizing the economic loss of the timber resource compared to lands designated as unsuitable for timber production. **DC 3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **DC 4.** Timber harvest supports maintaining regional timber harvesting and processing infrastructure. **Special Forest and Botanical Products** **DC 1.** A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses.	**Timber Management Goals** **Lands Suitable for Timber Production:** Manage lands suitable for timber production for the growth and yield of sawtimber, crop trees, pulpwood, and other forest products, including salvage harvest. **Lands Not Suitable for Timber Production but Timber Harvest is Permitted to Meet Other Resource Objectives:** Manage lands where timber harvest is allowed to protect other resource values. Resource objectives may include, but are not limited to, protection of wildland urban interface, protection of improvements, aquatic system restoration, fuel reduction, wildlife habitat enhancement, fisheries habitat enhancement, range improvement, and grass and shrub land maintenance. Salvage activities are allowed on these lands. The type, size, and extent of harvest will be determined through site specific analysis. Multiple products would be provided from these lands, including but not limited to, sawlogs, pulpwood, post, poles, and fuel wood through appropriate silvicultural practices. **Lands Where Timber Harvest is Not Allowed:** Manage lands where timber harvest is not allowed, where no exception for timber harvest has been identified to protect resource values. **Product Utilization:** Forest products would be used to provide economic benefits where project objectives, forest plan objectives, and forest plan standards can be met.
Energy, Minerals and Geological Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Minerals, Oil and Gas Goals** **Hardrock and Saleable Minerals:** Mineral commodities are explored and developed in accordance with national direction. **Locatable Minerals:** Locatable minerals are developed on all parts of the forest not withdrawn from locatable mineral entry in accordance with the 1972 Mining Law, regulations, and national direction. **Oil and Gas Leasing:** Offer oil and gas leasing opportunities under stipulations which protect resource values.

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Recreation **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings. **Developed Recreation** **DC 5.** Recreation facilities, including trails and dispersed sites, and their use have minimal impacts on resources including ecological integrity and diversity, at-risk species, heritage and cultural sites, water quality, and aquatic species. **Developed Recreation** **DC 2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities. **Dispersed Recreation** **DC 1.** Dispersed opportunities are available across the forest for a wide variety of users where compatible with environmental resources, recreation settings and social interactions such as user conflicts and crowding. **Recreation: Outfitter Guides** **DC 1.** Outfitters and guides offer services that the agency and public need, in order to offer opportunities that otherwise would not be obtainable therefore increasing the diversity of recreation opportunities available. **DC 2.** Outfitter and guide services promote the roles, contributions, and sense of the place, and are appropriate for the recreation opportunity spectrum class.	**Recreation and Travel Management Goals** **Recreation Settings**: Offer a choice of recreation settings ranging from remote backcountry to more developed front country areas. **Recreation Opportunities:** High quality diverse outdoor recreation opportunities are provided, including but not limited to: • Day use activities within a 30 minute drive of communities for motorized and nonmotorized trails, picnicking and interpretive sites, • Winter use areas near communities for ski touring, snowshoeing and snowmobiling, • Trails and routes for autos, four-wheel-drive vehicles, ATVs, motorcycles, mountain bikes, horses, and hikers to high mountain lakes and other features, and • Developed and dispersed camping. **Road and Trail Use:** A system of routes and areas designated for non-motorized and motorized use are identified and available for public use. Resources are protected and user conflicts are minimized by allowing motorized wheeled travel only on designated routes and areas. Established routes to dispersed campsites are recognized as part of the forest transportation system. A system of trails designated for nonmotorized uses are also identified and available for public use. **Developed Sites:** High quality developed recreation facilities are strategically located to concentrate use, provide access to backcountry settings, and protect natural resources. Sites are clean, well maintained, and designed for universal accessibility. **Commercial Recreation:** Permitted guiding, outfitting, and resort operations enhance visitor access and enjoyment, help achieve forest management objectives and contribute to regional and local economies.
Infrastructure; Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff,	**Infrastructure** **Transportation System:** The minimum transportation system necessary is identified and managed. Roads and trails are identified in the transportation atlas maintained at the Forest Supervisor's Office. Roads and trails are constructed, managed, and maintained to meet land and resource objectives. **Facilities:** Administrative and/or recreation facilities are constructed, managed, and maintained to meet land and resource objectives and address recreation demand.

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erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **Infrastructure; Facilities** **DC 3.** Administrative facilities provide for the safety, health, and intruder security of the occupants. **Recreation; Developed Recreation Sites** **DC 2.** Quality, well-maintained recreation facilities at key locations accommodate concentrations of use, enhance the visitor's experience, provide for a range of opportunities in various settings, public health and safety, and protect the natural resources of the area. Developed recreation sites accommodate current and appropriate new levels of recreation use and integrate accessibility for users who have disabilities.	
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands.	**Scenic Resources** **Scenery Management Goal:** Scenic resources reflect ecosystem diversity, enhance the recreation settings, and contribute to the quality of life of local residents and communities.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 2.** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands. **Land Uses** **DC 1.** Opportunities are available for a variety of land (non-recreation) special uses that include energy transmission rights of way, communication uses, roads, research activities, and other public services, on lands that are suitable for these activities. **DC 2.** Energy corridors throughout the planning area improve the delivery of electricity, oil, and gas, and enhance the western electric transmission grid by improving reliability, reducing congestion, and contributing to the national electrical grid.	**Lands Goals** **Conservation Easements:** Conservation easements are acquired where appropriate to protect important habitat or viewsheds. **Land Adjustments:** Land ownership adjustments are pursued as opportunities arise, to improve national forest management through purchase, exchange, or other authority. **Property Lines:** National Forest System property lines adjacent to private lands and boundaries of special areas such as the National Wilderness Preservation System are clearly marked where encroachment is likely. **Right-of-way:** Existing public access to National Forest System lands would be maintained and additional access would be provided by acquisition of new road or trail rights-of-ways. Rights-of-ways are acquired to national trails or historic routes, special recreation areas, or other tracts of the National Forest System lands where public access does not exist. **Utility Corridors and Communication Sites –** A network of designated utility corridors and communication sites is provided to minimize the proliferation of rights-of-way, facilities, and corridors across the landscape.

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Goal 3. The Forest Service coordinates with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.	
Designated Wilderness Areas **DC 1.** Key qualities of wilderness character for a given area including untrammeled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated.	**Designated Wilderness** **Lee Metcalf Wilderness Goal:** This area is managed to protect Wilderness character as defined in the Wilderness Act as outlined in the Lee Metcalf Wilderness Management Plan.
Recommended Wilderness Areas **DC 1.** Recommended wilderness areas maintain their existing wilderness characteristics, so as to preserve opportunities for inclusion in the National Wilderness Preservation System. **DC 2.** Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting.	**Recommended Wilderness** This area is managed to protect wilderness characteristics and values and to provide nonmotorized recreation opportunities with high levels of challenge and solitude.
Continental Divide National Scenic Trail **DC 1.** The CDNST is a well-defined trail that provides for high-quality, primitive hiking and horseback riding opportunities, and other compatible trail activities, in a highly scenic setting along the Continental Divide. The significant scenic, natural, historic and cultural resources along the trail's corridor are present. Where possible, the trail provides visitors with expansive views of the natural landscapes along the Divide.	**Continental Divide National Scenic Trail** The Continental Divide National Scenic Trail is managed according to the National Trails Act, the CDNST Study Reports and FEIS, and CDNST Comprehensive Plan (as amended) for the purpose of providing: • "A continuous, appealing trail route, designed for the hiker and horseman, but compatible with other land uses." • Access for hikers and stock into the diverse country along the Continental Divide in a manner which will assure a high quality recreation experience while maintaining a constant respect for the natural environment. • Exception for motorized use is outlined in the National Trails Act.
Nez Perce (Nee-Me-Poo) National Historic Trail **DC 1.** Interpretive materials and identification signage are available for the Nez Perce (Nee-Me-Poo) National Historic Trail.	**Nez Perce National Historic Trail** managed according to the NPNHT Comprehensive Plan.

Caribou – Targhee National Forest, Idaho

The Caribou-Targhee National Forest manages lands adjacent to the Custer Gallatin National Forest on the Montana/Idaho border at the southwestern part of the forest.

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Soils **DC-3.** Organic substrates (vegetative litter, coarse woody debris, and soil organic matter) are present in sufficient amounts to support soil fertility and ecological functions.	**Soils** **Goal 1.** Long-term soil productivity is sustained by retaining fine organic matter and woody residue on activity areas
Watershed and Aquatics. **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-6.** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (for example, bankfull width, depth, entrenchment ratio, slope and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists. **DC-11.** Instream and riparian habitat conditions in managed watersheds move towards conditions similar to those in reference watersheds (conditions such as, large woody debris recruitment, pool frequency and residual depth, width-to-depth ratios, stream shading and temperature, bank stability, etc.).	**Fisheries, Water, and Riparian Resources** **Goal 1.** Maintain or improve water quality to meet water quality standards for the States of Idaho and Wyoming **Goal 2.** Water quality will improve on stream segments on the forest identified by the States of Idaho and Wyoming as having water quality concerns and they are removed from the Water Quality Limited list **Goal 3.** Maintain or restore water quality, to a degree that provides for stable and productive riparian and aquatic ecosystems **Goal 4.** Maintain or restore stream channel integrity, channel processes, and the sediment regime (including the elements of timing, volume, and character of sediment input and transport) under which the riparian and aquatic ecosystems naturally developed **Goal 5.** Maintain or restore instream flows to support healthy riparian and aquatic habitats, the stability and effective function of stream channels, and the ability to route discharges **Goal 6.** Maintain or restore the natural timing and variability of the water table elevation in meadows and wetlands **Goal 7.** Maintain or restore the diversity and productivity of native and desirable nonnative plant communities in riparian zones. **Goal 8.** Maintain or restore riparian vegetation to A. Provide an amount and distribution of large woody debris characteristic of natural aquatic and riparian ecosystems, B. Provide adequate summer and winter thermal regulation within the riparian and aquatic zones, C. Help achieve rates of surface erosion, bank erosion, and channel migration characteristic of those under which the communities developed naturally

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DC-12. Water quality, including groundwater, meets or exceeds applicable state water quality standards, fully supports designated beneficial uses and are of sufficient quality to support surrounding communities, municipal water supplies, and natural resources. The forest has no documented lands or areas that are delivering water, sediment, nutrients, and/or chemical pollutants that would result in conditions that violate the Montana and South Dakota states' water quality standards (for example, total maximum daily loads) or is permanently above natural or background levels. **Riparian Management Zones (RMZs)** **DC-1.** Riparian management zones have native assemblages of flora and fauna; well distributed physical, chemical, and biological conditions resilient to disturbance regimes; species composition and structural diversity of native plant communities provide adequate summer and winter thermal regulation, provide bank stability moderating the rate of surface erosion, bank erosion, and channel avulsion; maintain and contribute to water quality and nutrient cycling processes, organic matter processing, and ecosystem metabolism. **DC-2.** Riparian management zones are, at a minimum, properly functioning to provide energy dissipation, in-stream thermal buffering, sediment capture and routing, groundwater recharge and have an intact flow regime similar to historical flow patterns.	**Goal 9.** Maintain or restore aquatic habitats necessary to support overall biodiversity, including unique genetic fish stocks such as native cutthroat trout that evolved within the specific geo-climatic regions **Goal 10.** Maintain or restore habitat to support populations of well-distributed native and desired nonnative plant, vertebrate, and invertebrate populations that contribute to the viability of riparian-dependent communities **Goal 11.** Wherever possible, secure water rights for maintenance of riparian and aquatic habitat, under State appropriative law, State reserved rights (in Wyoming), and Federal reserved rights **Goal 12.** Focus maintenance and restoration efforts, where needed, within inventoried hydrologically disturbed watersheds **Goal 13.** Participate in cooperative river basin planning efforts Coordinate management activities to be consistent with the results of these efforts including the Henry's Fork Basin Plan and the South Fork Snake Basin Plan
Vegetation Multiple Desired Conditions for forested, grassland, shrubland, woodland, riparian, alpine and sparse vegetation. **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Ecological Processes and Patterns; Properly Functioning Condition (PFC)** **Goal 1.** Ecosystems and their components are maintained in properly functioning condition dynamic and resilient to disturbances to structure, composition, and processes at appropriate landscape scales Ecosystems are not at risk for disturbances that have the potential to degrade them beyond the point of resiliency and sustainability **Goal 2.** Ecological systems at risk are identified and prioritized for management action **Goal 3.** In assessing properly functioning condition, the biological and physical, social, and economic components of ecosystems are considered **Goal 4.** Management strategies are used to maintain or restore ecological integrity, productivity and sustainability over time **Goal 5.** Biodiversity is maintained or enhanced by managing as much as possible for a diverse array of habitats tied to natural occurrence and distribution of plant communities

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	Goal 6. Adaptive management strategies are used to gain understanding during project implementation and make adjustments to maintain and restore properly functioning condition **Insects and Disease** **Goal.** Insects and disease are allowed to play their natural role in ecosystem dynamics to the extent compatible with other resource objectives. **Vegetation** **Goal 1.** Maintain and restore healthy, diverse forested and non-forested ecosystems through time, including appropriate components of dead and down woody material **Goal 2.** Use vegetation management to achieve a broad array of multiple-use and ecosystem management objectives, including maintenance, improvement, and restoration of: forest health; scenic viewsheds and corridors; wildlife habitat effectiveness and quality; hazardous fuels reduction; biological diversity of plant and animal communities; riparian and watershed health and function; vegetation structure, composition, and distribution in larger landscapes **Plant Species Diversity** **Goal 1.** Preserve unique formations within a landscape (such as cliffs, bogs, seeps, talus slopes, warm or alkaline springs, pot holes, and rock outcroppings) that provide habitat to plant species not common to the overall landscape and contribute to the species diversity within the landscape **Goal 2.** Provide necessary protection and management to conserve listed threatened, endangered and sensitive plant species.
Fire and Fuels **DC 1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire.	**Fire** **Goal 1.** Identify the historic role of fire and restore fire as an ecological process, where appropriate to achieve multiple-use and ecosystem management objectives **Goal 2.** Prescribed fire and managed natural fire is used to achieve desirable soil and habitat characteristics, improve forest health, and create or maintain diversity in vegetative structure, composition, and patterns as described in PFC analysis **Goal 3.** Suppress fire in a safe, cost effective manner where necessary to protect human life and safety, developments, structures, and sensitive resource values **Goal 4.** Fuel accumulations are reduced and managed within their historic range

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Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for forested vegetation and other vegetation, thereby providing wildlife habitat for a variety of life cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	**Wildlife** **Goal 1.** Wildlife biodiversity is maintained or enhanced by managing for a diverse array of habitats and distribution of plant communities **Goal 2.** Provide habitat to support the wildlife and hunting goals of the States of Idaho and Wyoming
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions. **Vegetation** **Multiple Desired Conditions for upland, riparian and other vegetation types.**	**Range** **Goal 1.** Upland and riparian plant communities meet Desired Vegetation Conditions (DVCs) for site-specific areas **Goal 2.** Domestic livestock grazing is managed to promote the desired conditions of various resources including maintenance of adequate plant and litter ground cover, nutrient recycling, forage for wildlife species, seed production, and the restoration and maintenance of riparian communities
Timber **DC 3.** Production of timber and timber harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies.	**Timber Management** General **Goal:** Silvicultural techniques will be used as a tool to manage or manipulate vegetation for the purpose of achieving forest plan resource objectives Emphasis will be placed on restoration of ecological function, structure and composition Slash Treatment **Goal:** Fuel loading on activity areas meets site productivity objectives for wildlife and fire Fuelwood **Goal 1.** A sustainable level of fuelwood is made available **Goal 2.** Conduct inventory for better determining the sustainable level of fuelwood Precommercial Thinning **Goal 1.** Thinning results in restoration of ecological structure, function and composition **Goal 2.** Mimic tree densities and patch sizes occurring under natural conditions over a landscape **Goal 3** .Provide for a variety of future resource products

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Special Forest and Botanical Products **DC 1.** A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses. **Areas of Tribal Importance** **DC 3.** Tribal members have access to sacred sites and landscapes within the forest and for the exercise of reserved treaty rights and cultural uses.	**Special Forest Products** **Goal 1.** Establish guidelines for commercial harvesting of special forest product species **Goal 2.** Provide for the historical, cultural, and recreational uses, as well as rights and privileges afforded Native Americans under treaties and agreements, before commercial uses of special forest products are allowed
Energy, Minerals and Geological Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Minerals** **Goal.** Implement leasing decisions including identification of lands available for leasing made in the Forest Oil and Gas Leasing EIS and its associated Record of Decision
Infrastructure; Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms.	**Access** **Goal 1.** The forest road and trail system is cost effective and integrates human needs with those of other resource values, particularly grizzly bear, elk, and native cutthroat trout **Goal 2.** Elk vulnerability is decreased and grizzly bear security is increased **Goal 3.**Native cutthroat trout habitat is restored through effective road closures, obliterations, reclamations, redesign, and improved maintenance practices
Recreation **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings. **Developed Recreation DC-4.** Additional recreational development is provided within the context of opportunities and facilities provided by off-forest private and public recreation providers. **Visitor Education and Interpretation DC-5.** Education, in a variety of mediums about forest stewardship and responsible use leads to better visitor compliance with regulations.	**Recreation** <u>Winter Recreation</u> **Goal 1.** Provide a quality winter recreation experience while minimizing conflicts between motorized and nonmotorized use and wintering big game **Goal 2.** Establish a linear capacity for two-way snow machine trails for purposes of safety and quality of the recreation experience **Goal 3.** Provide networks of marked, designated, and groomed snow machine, cross-country ski, and other winter travel routes and trailhead facilities **Goal 4.** Provide winter recreation user information to educate users of wildlife needs and promote backcountry safety

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	Goal 5. Promote opportunities for backcountry winter recreation off-highway vehicle **Goal.** Provide a network of off-highway vehicle trails while minimizing the effects of off-highway vehicle use on soils, wildlife and other users Developed Facilities **Goal.** Maintain or slightly increase the forest's developed site capacity in accordance with the CIP (Capital Improvement Projects) Implementation Schedule Trails **Goal 1.** Trails for motorized/mechanized use would be sufficient to sustain use over long periods of time and minimize requirements for maintenance or reconstruction These conditions would be achieved within subsections in the following sequence Big Hole Mountains, Caribou Range Mountains, Lemhi-Medicine Lodge, Centennial Mountains, Madison-Pitchstone Plateaus, Island Park, and Teton Range **Goal 2.** Trails for nonmotorized/mechanized use would be sufficient to sustain use over long periods of time with minimal requirements for maintenance or reconstruction These conditions would be achieved within subsections in the following sequence Teton Range, Big Hole Mountains, Centennial Mountains, and Caribou Range Mountains
Scenery **DC 2.** The forest's scenery, as directed by the Scenic Integrity Objectives, positively contributes to the quality of life of local residents and visitors while reflecting a relative range of allowable alterations that balances social and economic values, ecosystem health, landscape dynamics and sustainability.	**Visual Quality** **Goal:** Manage the visual landscape in accordance with the planned visual quality objective, as mapped in the Geographic Information System
Land Uses **DC 2.** Energy corridors throughout the planning area improve the delivery of electricity, oil, and gas, and enhance the western electric transmission grid by improving reliability, reducing congestion, and contributing to the national electrical grid. **Goal 3.** The Forest Service coordinates with project proponents to co-locate emerging technology, communication sites, energy corridors, and other permitted infrastructure to minimize environmental and visual impacts.	**Lands** **Goal 1.** A well planned system of reliable and technically feasible energy corridors are provided to serve existing and future regional and local energy needs, compatible with other resource needs and objectives These corridors may be either designated (prescription 8 1) or non-designated (other prescriptions) **Goal 2.** The National Forest System lands set aside for utility corridors are minimized to reduce fragmentation and minimize acres allocated for that use
Recommended Wilderness Areas	**Recommended Wilderness** **Goal 1.** Protect and perpetuate wilderness character

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DC 1. Recommended wilderness areas maintain their existing wilderness characteristics, so as to preserve opportunities for inclusion in the National Wilderness Preservation System. **DC 2.** Recommended wilderness areas provide outstanding opportunities for solitude or primitive and unconfined recreation. Impacts from visitor use do not detract from the natural setting. **DC 3.** Recommended wilderness areas are characterized by a natural environment where ecological processes such as natural succession, wildfire, avalanches, insects and disease function as the primary forces affecting the environment.	**Goal 2.** In the Lionhead area and Winegar Hole Addition, maintain grizzly bear core area attributes as defined in the IGBC Task Force Report, July 1994
	Not applicable: Forest specific management areas that are not analogous to a Custer Gallatin land allocation.

Shoshone National Forest, Wyoming

The Shoshone National Forest manages lands adjacent to the Custer Gallatin National Forest south of the Absaroka Beartooth Geographic Area east of Yellowstone National Park.

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Air Quality **DC-1.** The overall quality of the air contributes positively to human and ecosystem health, visibility, and recreation, multiple-uses and wilderness values acknowledging that short-term smoke impacts from local, regional, or national wildland fire may occur. **Goal 1.** The Forest Service cooperates with Federal, State, and Tribal agencies to meet air quality regulations as necessary. Prescribed burns are coordinated with appropriate partners (such as, the Montana Idaho Airshed Group) to minimize smoke impacts.	**Air Desired Condition** Air quality related values, including visibility, support human health, quality of life, economic opportunities, high quality recreation, and wilderness values
Soils **DC-1.** The inherent productivity of soil resources on national forest land sustains native plant communities and wildlife populations while maintaining hydrologic function, and providing for social and economic benefits. **Watershed and Aquatics.** **DC-1.** Watershed features, including natural disturbance regimes and aquatic/riparian habitats, are well distributed, diverse, and complex. Watersheds and associated aquatic ecosystems retain their inherent resilience	**Water and Soil Desired Conditions** • Watersheds are characterized as having high geomorphic, hydrologic, and biotic integrity relative to natural potential. Vegetation and ground cover maintain good hydrologic function. Soils are maintained or improved to productive conditions. Productive soils and sustainable ecosystems are maintained when soil impacts, such as erosion, displacement, compaction, burning, and nutrient drains, are managed by best management practices. • Watersheds support favorable conditions of water flow to support multiple

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to respond and adjust to disturbances, including climate change, without long-term, adverse changes to their physical or biological integrity. **DC-3.** Habitat and ecological conditions support self-sustaining populations of native aquatic and riparian associated plant and animal species. **DC-4.** Aquatic systems and riparian habitats express physical integrity, including physical integrity of shorelines, banks, and bottom configurations, within their aquatic natural range of variation. **DC-6.** In-stream flows are sufficient to create and maintain riparian, aquatic, and wetland habitats; to retain patterns of sediment, nutrient, and wood routing and transport while maintaining reference dimensions (for example, bankfull width, depth, entrenchment ratio, slope and sinuosity); to ensure floodplain inundation occurs within the natural range of variation allowing floodplain development; and to ensure the timing, magnitude, duration, and spatial distribution of peak, high, and low flows are retained, within the range of conditions of the reference watersheds, as defined by agency monitoring. **DC-7.** Groundwater-dependent ecosystems, including wetlands, seeps, springs, fens, riparian areas, groundwater-fed streams and lakes, and groundwater aquifers, persist in size and exhibit water table elevations and function within their natural range of variation. The function of surface and subsurface aquatic ecosystems persists.	uses, biological resources, and a range of flows that transport sediment and maintain natural channel dimensions. Base flows support riparian vegetation and instream needs. Water quality is protected, and where needed, improved for physical, chemical, biological, and aesthetic qualities to attain both National Forest and National water quality goals. • Aquifers maintain natural patterns of recharge and discharge, especially where they are important to surface features dependent upon groundwater for their existence (such as springs, wetlands, fens, and stream flows). Aquifers possessing groundwater that provide multiple-use benefits maintain water quality at natural conditions. • Streams are in dynamic equilibrium with their water and sediment supplies. Stream systems retain their ability to transport sediment, they neither aggrade nor degrade, and the floodplain is accessible when stream flows are above bankfull level. • Periodic floods are the primary disturbance factor shaping stream channel structure and riparian vegetation patterns. Flood timing, duration, and magnitude follow expected patterns based on precipitation, season, aspect, elevation, and desired upland vegetation condition, and provide for flood dependent vegetation and channel maintenance. High flows exceed bankfull discharge for a short number of days at least every 2 years and provide for flood-dependent vegetation and channel maintenance. Floodplains dissipate floods and sustain water tables and the natural timing and variability of water levels in riparian, wetland, and meadow habitats.
Vegetation Multiple Desired Conditions for forested, grassland, shrubland, woodland, riparian/wetlands, alpine and sparse vegetation.	**Vegetation Desired Conditions** • Across the Shoshone, a diversity of vegetation exists with a mosaic of cover types and stand structures forming a healthy, resilient landscape that provides habitat and connective corridors for all naturally occurring and desired species. Corridors and habitat connectivity exist to allow species to shift to new habitats. Healthy, resilient vegetation contribute to the forests ability to store carbon and function as a carbon sink. The dominant cover types on the Shoshone continue to be grasslands, Douglas-fir, spruce/fir, lodgepole pine, and whitebark pine. The desired forestwide mix of cover types is shown in Table 1 and the current mix is shown in Table 2. • Forest vegetation exists in a diversity of age classes across the Shoshone. In areas that receive no or infrequent vegetation management actions (management area categories 1, 2, and 3), natural process such as fire and insects are the predominant disturbances that influence stand structure and landscape patterns. These natural disturbances can lead to

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	large fluctuations in stand conditions. Though on the average in comparison to other areas, stands are older, patch size is variable with many small patches (less than 10 acres) interspersed among large patches (greater than 100 acres) that dominate the area, and the amount of dead and down material is greater. • In areas that receive more frequent vegetation management actions (management area categories 4, 5, and 8), stand structure and landscape patterns are influenced by prescribed fire, timber harvest, and other silviculture treatments in addition to natural disturbances. Vegetation management tends to reduce the incidence of large fluctuations in stand conditions. All conditions are still present, but on the average in comparison to other areas, stands are younger, patch size is less variable with more mid-size patches (10 to 100 acres), and the amount of dead and down material is lower. These conditions provide more resilient, healthy forested stands than are found in unmanaged areas of the Shoshone. • Snags occur within all tree cover types and commonly occur in patches. Densities are highest in areas where natural disturbance processes dominate (management area categories 1, 2, and 3). In these areas, snag densities range from five snags/acre greater than 9 inches in diameter for aspen cover type to 21 snags/acre greater than 9 inches for spruce/fir cover type (Table 5). Areas where vegetation management activities are more frequent (management area categories 4, 5, and 8) have the lowest snag densities, with minimum densities of two to three snags/acre greater than 9 inches in diameter. • Occurrence of large woody debris generally mirrors the occurrence of snags, with the greatest densities in those areas where natural processes dominate. • Whitebark pine occurs throughout its range (at high elevations and in mixed conifer stands just below timberline). Cone-bearing stands are healthy and younger stands have been restored to areas where bark beetles, blister rust, and fire have eliminated mature stands in the last decade. • Riparian vegetation is supportive of hydrologic functions and good water quality. Vegetation in riparian areas is composed of a diverse structure of native plant communities that perpetuate the distribution of woody debris, soil cover, bank stability, aquatic habitat, and shading characteristics of resilient riparian ecosystems. In areas where dry meadow and upland plant communities, including Kentucky bluegrass types, have invaded into wetland/riparian areas, management allows for their replacement over time

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	by native plant communities to the extent practicable. Ground cover is typically comprised of organic litter, shrubs, grasses, graminoids, and forbs. Riparian vegetation composition and structure are similar to what would be expected with natural disturbance processes and vary physiographically. Vegetation displays a mosaic of successional stages and age classes that sustain a diversity of riparian communities and the aquatic and terrestrial organisms that use them over time. • Wetland habitats (springs, seeps, ponds, lakes, fens, etc.) remain intact and properly functioning with natural water flow patterns. Fens support the features and functions inherent to these special habitats. **Insects and Disease Desired Conditions** The disturbance processes from insects and diseases continue to operate across the Shoshone. In management area categories 1, 2, and 3 (including wilderness areas), these processes continue at natural levels and occasionally result in epidemics that affect large areas where watersheds are dominated by vegetation conditions susceptible to epidemics. Forested stands within management area categories 4, 5, and 8 generally have smaller patch sizes, reduced stand density, and a higher portion of stands in younger age classes, all of which reduce the susceptibility to insect epidemics.
Fire and Fuels **DC 1.** Wildland fires burn with a range of intensity, severity and frequency that allows ecosystems to function in a resilient and sustainable manner. **DC 2.** Vegetation conditions (composition, structure and function) support natural fire regimes except in the wildland urban interface and adjacent to infrastructure where vegetation conditions support low-intensity fire where necessary in order to reduce negative impacts to values at risk. **DC 3.** There are minimal detrimental impacts to values at risk from wildland fire.	**Fire and Fuels Desired Conditions** • Wildland fire plays a role in maintaining healthy, resilient ecosystems, as appropriate, for the vegetation type and management objectives. Fire disturbance contributes to vegetation diversity across the landscape. Stand replacement fires reestablish seedling/sapling structural stages. Lower intensity fires contribute to intra-stand diversity by creating or maintaining vegetation patch size and density. Fire disturbances generally range in size from a few hundred to thousands of acres. Fire's natural role is reduced and occurs at smaller scales in areas where existing resource values and infrastructure limit the desirability of large-scale fires. • Hazardous fuel conditions have declined. Within the wildland urban interface, the forest understory is discontinuous and relatively free of ladder fuels (trees and/or brush), trees are generally spaced to create open discontinuous canopies, and deciduous species are present where conditions are favorable. In areas that receive more frequent management actions (management area categories 4, 5, and 8), hazardous fuel conditions are lower and stands are younger and more diverse. In these areas, lower fuel levels and greater stand diversity provide more opportunities for controlling unwanted wildfire. In the remaining areas (management area categories 1, 2, and 3 outside the wildland urban

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	interface), vegetation and hazardous fuel conditions vary across the landscape, providing fewer opportunities for controlling wildfire when desired.
Invasive Species **DC-1.** Invasive species are non-existent or in low abundance, and do not disrupt ecological functioning. No new invasive species become established on the forest. Where invasive species occur their range is reduced where possible or at a minimum they do not expand. Desired nonnative species occur where they do not conflict with native species, and are supported by healthy, functioning ecosystems. **DC-1.** Native plant species and plant communities dominate the landscape, while invasive plant species are non-existent or in low abundance, and do not disrupt ecological processes or function.	**Invasive Species Desired Conditions** • Existing occurrences of terrestrial invasive species are declining. New outbreaks of terrestrial invasive species are neither established nor spreading to adjacent lands. • Outbreaks of aquatic invasive species are neither established nor spreading to adjacent waters.
Wildlife **DC-2.** Habitat conditions contribute to species recovery needs such that population trends of listed species are stable or increasing across their range. Lands within critical habitats designated by the U.S. Fish and Wildlife Service provide the physical and biological features identified as essential to the conservation and recovery of listed species. **At Risk Plant Species** **DC-1.** Habitat conditions support the recovery and persistence of plant species that are recognized as at-risk species. Ecological conditions and processes that sustain the habitats currently or potentially occupied by these species are present.	**Threatened, Endangered, Proposed, and Candidate Species Desired Conditions** Suitable habitats for threatened, endangered, proposed, and candidate species are managed consistently with established and approved recovery plans and conservation strategies. Management actions contribute to, or do not prevent, recovery or delisting of these species and support species diversity and viability. Suitable habitats for proposed and candidate species are managed to help preclude the need for listing under the Endangered Species Act. Desired distribution and abundance of threatened, endangered, proposed, and candidate species are maintained.
Wildlife **DC-1.** A complete suite of native species is present, with sufficient numbers and distribution to be adaptable to changing conditions for long-term persistence. Desired non-native species are present where biologically suitable and socially acceptable. Wildlife diversity contributes to ecological processes such as predator-prey relationships, nutrient cycling, hydrologic function, vegetation composition and structure. **DC-3.** Vegetation conditions are generally within the natural range of variation as described for vegetation, thereby providing wildlife habitat for a variety of life	**Wildlife Desired Conditions** Because the Shoshone Forest Plan uses different species categories than the Custer Gallatin Forest Plan, the Shoshone Forest Plan desired conditions are not listed for these species categories.

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cycle needs, including year-round and seasonal use by a diverse suite of native and desired non-native species.	
Areas of Tribal Importance **DC-1.** Culturally significant species and the habitat necessary to support healthy, sustainable, and harvestable plant and animal populations support rights reserved by Tribes in treaties. **DC-2.** Forest resources are available for collection by Tribal members with treaty rights. **DC-3.** Tribal members have access to sacred sites and landscapes within the forest and for the exercise of reserved treaty rights and cultural uses. **Goal.** Cultural landscapes, sacred sites and other culturally significant areas identified by Tribes provide tangible links to historically rooted beliefs, customs and practices and are maintained and managed through coordination with the appropriate Tribes.	**Tribal Rights and Interests Desired Conditions** • Tribes continue to have interest in and reliance on ecosystems even as their cultures change, employing both traditional and contemporary ways of relating to their homelands and interest areas (lands where they traditionally ranged to sustain their ways of life). Lands within the Shoshone help sustain American Indians' way of life, cultural integrity, social cohesion, and economic well-being. • The Shoshone takes a proactive role on the tribes' behalf, especially in areas of treaty interest, rights, traditional and cultural resources, and ecosystem integrity. The Shoshone provides opportunities for traditional American Indian land uses and resources. The presence of sustainable habitats is fundamental to the achievement of both useable and harvestable levels of resources significant to American Indians' traditional cultural practices, as well as to ecosystem integrity.
Cultural and Historic Resources **DC 1.** Identified traditional cultural properties, cultural landscapes, and other culturally significant areas provide tangible links to historically rooted beliefs, customs, and practices. **DC 2.** Interpretation and adaptive use of cultural resources provide public benefits and enhance understanding and appreciation of Custer Gallatin National Forest prehistory and history. **DC 3.** Historic Forest Service administrative buildings and sites reflect agency history, identity, and function. Historic buildings are adaptable to other innovative proposed uses.	**Heritage Resources Desired Conditions** Heritage resources are preserved and enhanced for the benefit of present and future generations. Archaeological and historic resources are intact, stable, and, when appropriate, made accessible to the public. Resources are identified, evaluated, and nominated to the National Register of Historic Places. Select resources are utilized for interpretation, education, research, traditional use, and stewardship opportunities. Eligible heritage resources, for example the Nez Perce National Historic Trail and the Wapiti Ranger Station, are protected and interpreted for the public, where appropriate.
Permitted Livestock Grazing **DC 1.** Grazing allotments contribute to a supply of livestock forage that contributes to local ranching operation sustainability and local community economy while maintaining or moving toward ecological desired conditions.	**Commercial Livestock Grazing Desired Conditions** The Shoshone provides forage for commercial livestock operations. Forage availability for local ranches helps support ranch operations and contributes to local economies. Additionally, economically viable ranch operations help maintain open space and wildlife habitat near the Shoshone, which is integral to meeting desired conditions and maintaining the economic and social sustainability of local communities. Conflicts between livestock and large

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	predators are minimized to the extent possible, while following Federal and State of Wyoming laws and regulations.
Timber **DC 1.** Lands identified as suitable for timber production support a regularly scheduled timber harvest program that provides for jobs and income while also sustaining ecosystem health. **DC 3.** Timber production and harvest contribute to ecological sustainability and ecosystem health while contributing to economic sustainability, providing jobs, and income to local economies. **DC 4.** Timber harvest supports maintaining regional timber harvesting and processing infrastructure. **Special Forest and Botanical Products** **DC 1.** A variety of special forest products and plant materials are available for commercial, personal, tribal, educational, and scientific uses.	**Forest Products Desired Conditions** The removal of wood products (sawtimber, small diameter roundwood, chips, pulp, firewood, etc.) and other forest products (mushrooms, Christmas trees, pine cones, plants, greenery, etc.) contributes to ecological, social, and/or economic sustainability (including local communities) and associated desired conditions. A sustainable mix of timber products responsive to existing, new, and changing markets, including local industry, is provided. Included in the mix of timber products are some that contribute to carbon sequestration.
Energy, Minerals and Geological Areas of Interest **DC 1.** Energy and mineral resources are available in consideration of other resources values which may be present. Following mineral activity, lands are in a productive capacity in recognition of site conditions, site stability and prior existing land use.	**Minerals Desired Conditions** Mineral resources provide commodities for current and future generations commensurate with the need to protect other resources. Mineral materials are available to support resource management, such as road surfacing; personal use, such as landscape rock; and some commercial uses.
Energy, Minerals and Geological Areas of Interest **DC 7.** Geologic resources provide ecological, scientific, educational, interpretative, scenic, recreational, and paleontological benefits for the public and academia.	**Paleontological Resources Desired Conditions** Paleontological resources on the Shoshone provide for preservation and use of these resources. Resources are available for public and scientific uses as governed by existing regulations.
Recreation **DC 3.** Recreation opportunities are adaptable to changing trends of desired recreation opportunities and increasing demands and use of the forest. Additional recreation facilities that accommodate growing demand provide quality recreation experiences and conserve forest resources. **ROS DC-1.** Outdoor recreation opportunities and experiences are provided year-round in a range of settings as described by the desired recreation opportunity spectrum. These settings reflect the integration of other resource values, in a sustainable manner, with the desired recreation opportunities, access, facilities, and infrastructure provided within those settings.	**Recreation Desired Conditions** • A diversity of year-round recreation opportunities attracts increasing numbers of visitors to the Shoshone, thereby providing economic and social benefits to local communities. • The Shoshone is rugged, remote, and wild. It plays a key role in providing locals and travelers an opportunity to connect with nature and experience wildlife. The rich western heritage provides a trail-based infrastructure into and through the back country and continues to instill a sense of adventure and freedom. The Shoshone provides minimally developed facilities for overnight use and back country activities, with the exception of facilities

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Developed Recreation **Goal 1.** The Forest Service encourages private and public partnerships, for example, contractors, concessionaires, private sector and volunteers to provide capacity to help meet current and future recreation demands. **Dispersed Recreation** **DC 1.** Dispersed opportunities are available across the forest for a wide variety of users where compatible with environmental resources, recreation settings and social interactions such as user conflicts and crowding.	along travel corridors and/or near destination water sites. • Front country areas provide a wide range of recreation opportunities for motorized and non-motorized recreation in a natural setting. These areas serve as gateways to the forest's recreation opportunities. • Partnerships are a significant tool to help provide public use and year round recreation opportunities. <u>Recreation opportunities</u> Established recreation opportunities are maintained where not in conflict with other resources. New opportunities consistent with recreation settings respond to public demand while still meeting desired conditions for other resources. Non-motorized management areas offer opportunities for solitude and recreation in a natural setting. <u>Dispersed recreation</u> Dispersed recreation areas are characterized by a predominantly natural appearing environment. To protect resources, developed facilities, such as toilets and designated camping sites, are present only after all other options are ruled out. Access is commonly provided by National Forest System roads and motorized trails.
Land Uses **DC 1.** Opportunities are available for a variety of land (non-recreation) special uses that include energy transmission rights of way, communication uses, roads, research activities, and other public services, on lands that are suitable for these activities. **Recreation: Special Uses** **DC 1.** Recreation special uses provide unique opportunities, services, and experiences for the recreating public on National Forest lands and/or respond to a demonstrated demand for a specific recreation opportunity. **DC 2.** Services provided by recreation special uses enhance the recreation experiences of forest visitors, enhance public health and safety, and protect natural resources. **DC 3.** Recreation special uses contribute to economic sustainability and are compatible with ecological and social experience thresholds. **Recreation: Outfitter Guides** **DC 1.** Outfitters and guides offer services that the agency and public need, in order to offer opportunities that otherwise would not be obtainable therefore increasing the diversity of recreation opportunities available.	**Special Uses Desired Conditions** Special use authorizations provide economic contributions to local economies while staying within capacities. Special use authorizations allow occupancy and use of National Forest System lands for appropriate activities when consistent with the desired conditions for the specific area. Recreation special use authorizations provide appropriate activities meeting demonstrated public needs when consistent with the desired conditions for the specific area. Special use authorizations provide opportunities for those needing outfitting and guiding services to participate in the recreation opportunities provided on the Shoshone. Outfitter and guide authorizations are available based on a suitable mix of guided and non-guided public capacity. This mix may vary by type of activity and/or season of use. Capacity calculations are made on an area-specific basis.

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DC 2. Outfitter and guide services promote the roles, contributions, and sense of the place, and are appropriate for the recreation opportunity spectrum class.	
Infrastructure; Roads and Trails **DC 1.** The transportation system provides safe and efficient public, private inholding, and administrative access to the forest for recreation, special uses, forest resource management, and fire management activities. The transportation system and its use have minimal impacts on resources including ecological integrity and diversity, threatened and endangered species, species of conservation concern, heritage and cultural sites, watersheds, water quality and aquatic species. Roads in intermittent stored service pose minimal risks to water quality and aquatic ecosystems. Drainage structures have a minimal risk of failure and provide adequate drainage that prevents accelerated runoff, erosion, and sediment delivery to streams. In addition, stream crossings provide for passage of aquatic organisms. **Beartooth National Forest Scenic Byway** **DC 1.** The intrinsic scenic, natural, historical, cultural, archaeological, and recreational qualities for which the Beartooth National Forest Scenic Byway was designated are present on the scenic byway. **Nez Perce (Nee-Me-Poo) National Historic Trail** **DC 1.** Interpretive materials and identification signage are available for the Nez Perce (Nee-Me-Poo) National Historic Trail. **Continental Divide National Scenic Trail** **DC 1.** The CDNST is a well-defined trail that provides for high-quality, primitive hiking and horseback riding opportunities, and other compatible trail activities, in a highly scenic setting along the Continental Divide. The significant scenic, natural, historic and cultural resources along the trail's corridor are present. Where possible, the trail provides visitors with expansive views of the natural landscapes along the Divide.	**Infrastructure** <u>Roads</u> System roads provide basic motor vehicle access to the Shoshone. They are safe and well maintained; diverse in grade, alignment, features, and driving experiences; have limited impacts on other resources; are compatible with desired conditions and objectives; and reflect suitable uses. System roads provide legal and reasonable access for recreation opportunities, resource management, and administration. Resource impacts from roads are balanced with the benefits of having the road available for use. Some roads are closed except to administrative and authorized use or for short-term resource management activities. Many roads are open to motorized use, including off-road vehicles, as identified on the motor vehicle use map. Temporary roads provide short-term access to areas of the Shoshone for meeting desired conditions and objectives for resource management. The Beartooth All-American Road, Wyoming Centennial Scenic Byway, Chief Joseph Scenic Byway, and Buffalo Bill Cody Scenic Byway provide outstanding scenic, recreational, and educational opportunities. Unauthorized routes are rehabilitated and returned to natural land settings. <u>Trails</u> System trails are the primary access to the Shoshone's back country settings. Trails across the Shoshone provide a variety of recreation opportunities across diverse terrains and recreation settings. High-quality loop trails exist for both motorized and non-motorized recreation. Non-motorized trails are provided by using a mixture of traditional multiple-day loop trails accessing back country areas and wilderness areas and by developing short day-hiking loops off scenic byways and near main access trails. Non-motorized opportunities for cross-country skiers and snowshoers are provided on both groomed and ungroomed trails. Designated cross-country ski areas provide access to non-motorized trails near open and plowed roads.

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	Motorized trail loop opportunities are provided using lower standard System roads with motorized trails constructed as connectors where needed. Snowmobiling opportunities are provided on groomed trails and in areas open to off-trail snow play. Wheeled motorized vehicle use occurs on System roads and trails unless otherwise authorized. The level of motorized opportunities has not been reduced since the Plan was approved. The Continental Divide National Scenic Trail and the Nez Perce National Historic Trail provide outstanding scenic, recreational, and educational opportunities.
Scenery **DC 1.** The forest's scenery provides for public enjoyment of the landscape's varied ecological regions, in relation to viewing contexts and expectations for highly valued viewsheds, across its broad geographic expanse from the mountains and valleys in the Greater Yellowstone Area to the eastern pine savanna raised uplands, rolling hills and grasslands.	**Scenery Desired Conditions** High-quality scenery that benefits tourism, the local economy, the community image, and overall recreation opportunities is maintained. Valued viewsheds, vistas, tribal traditional places, and natural landscape elements are protected, restored, and enhanced. Activities that protect, restore, enhance, and/or perpetuate long-term valued scenic elements may be visible to visitors in the short term. These activities may include, but are not limited to, timber harvest, fuel reduction, vista creation, wildfire, and insect and disease prevention and suppression. Scenic resources reflect ecosystem diversity, enhance the recreation settings, and contribute to the quality of life of local residents and communities.
Land Status and Ownership, Access, and Land Uses **DC 1.** Consolidated ownership reduces wildlife-human conflicts, provides for connectivity, and improves access to public lands. **DC 2.** Consolidated surface and mineral ownership meets resource and communities needs and facilitates efficient land management. **DC 3.** Road and trail easements provide adequate administrative access and reasonable public access to National Forest System lands.	**Land Adjustments Desired Conditions** The land ownership pattern of the Shoshone provides for efficient and effective resource management within the boundaries of the Shoshone. Rights-of-way and easements provide access to National Forest System lands.
Designated Wilderness Areas **DC 1.** Key qualities of wilderness character for a given area including untrammeled and undeveloped landscapes, natural processes, opportunities for solitude or primitive and unconfined recreation, and any other features of value to the wilderness contribute to the public purposes for which they were designated. **DC 2.** Wilderness areas embody the wilderness characteristics of naturalness and opportunities for solitude. **DC 3.** The untrammeled quality of wilderness is essentially unhindered and free from modern human control or manipulation.	**Designated Wilderness Desired Conditions** • Wilderness areas preserve and protect the wilderness character of the area and provide outstanding opportunities for solitude and primitive recreation. Wilderness areas are affected primarily by the forces of nature. Wilderness area ecological systems are substantially free from the effects of modern civilization. Ecological processes such as fire, insects, and diseases operate relatively freely from the influences of humans. Fires, as nearly as possible, play their natural ecological role within wilderness. Wilderness areas are free of invasive species. • Wilderness retains its primitive character and influence and is essentially without permanent improvements. Facilities and improvements within

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DC 4. Natural ecological processes and disturbances (for example, succession, wildfire, avalanches, insects, and disease) are the primary forces affecting the composition, structure, and pattern of vegetation. Wilderness areas provide opportunities for visitors to experience natural ecological processes and disturbances with a limited amount of human influence **DC 5.** Wilderness exhibits an undeveloped quality and is without nonconforming and/or unnecessary facilities, installations or human-caused surface disturbances. **DC 6.** Outstanding opportunities for solitude or primitive and unconfined recreation are available, where impacts to the wilderness character are not degraded. **DC 7.** Each wilderness area accommodates levels of recreation use that are ecologically sustainable and provides opportunities for solitude, primitive recreation and wilderness character.	wilderness are the minimum needed to protect the resources for which the wilderness was designated. • Forest management strategies support recreational and educational activities when in alignment with the preservation of wilderness character. • The wilderness management area consists of three settings that provide differing levels of solitude and isolation: pristine, primitive, and semi-primitive (See Map M). • The pristine settings provide natural biophysical conditions and a high degree of solitude for both wildlife and humans with no perceptible evidence of human use. Pristine wilderness provides outstanding opportunities for solitude and isolation. Opportunities for unconfined recreation are maximized. Evidence of human use is not noticeable and does not impact natural biological processes. Encounters with small groups or individuals are infrequent. All travel is cross country. • The primitive settings provide substantially natural biophysical conditions. Primitive wilderness provides opportunities for solitude. On-site regulation of recreation use is minimal. Campsites are dispersed; usually visitors will neither here nor see each other at adjacent campsites. Encounters with small groups and individuals are limited. Trails are available for travel. Travel is cross country or by use of a low density constructed trail system. Human influences on biophysical conditions and natural biological processes are minimal. Human uses and activities may be evident in the areas of highest visitor use. • Semi-primitive settings provide essentially natural biophysical conditions. In semi-primitive wilderness, trails concentrate use and provide access to popular destinations and travel routes. Encounters with other users can be frequent. Campsites are either dispersed or clustered around destinations and show evidence of repeated but acceptable levels of use. Management actions to mitigate visitor use impacts may be noticeable. Human uses and activities are evident in the areas of highest visitor use. Human activities may influence biophysical conditions and natural biological processes.
Research Natural Areas **DC 1.** Research natural areas provide opportunity for research, study, observation, and monitoring of natural-occurring ecological processes. **DC 2.** Ecological processes that drive the functional and structural patterns of research natural area ecosystems are present and functioning to support sustainability and resiliency.	**Line Creek Research Natural Area Desired Conditions** The research natural area provides an opportunity for research, study, observation, monitoring, and educational activities that maintain the natural conditions for which the area was established. The research natural area provides opportunities for solitude and primitive recreation, especially in the summer. The area is affected primarily by the forces of nature. Ecological processes such as fire, insects, and diseases operate relatively freely from the influences of humans. The area is free of terrestrial and aquatic invasive

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	species. The area remains unroaded and provides a non-motorized recreation opportunity in the summer and motorized and non-motorized recreation opportunities in the winter. Encounters with small groups and individuals are low to moderate. Human influences on vegetation are minimal.
Eligible Wild and Scenic Rivers **DC-01.** Eligible wild, scenic, or recreational rivers retain their free-flowing condition, preliminary classification, and the outstandingly remarkable values which provide the basis for their inclusion in the system.	**Eligible Wild and Scenic Rivers Desired Conditions** River segments and their corridors identified as eligible for recommendation as part of the National Wild and Scenic Rivers System retain free-flowing status, water quality, outstandingly remarkable values, and their classifications.
Inventoried Roadless Areas **DC-01.** Inventoried roadless areas provide primitive and semi-primitive settings. A diversity of recreation opportunities are available, including both motorized and non-motorized trail opportunities.	**Inventoried Roadless Areas Desired Conditions** Desired conditions for inventoried roadless areas are guided by the desired conditions for the underlying management area.
	Not applicable: Forest specific management areas that are not analogous to a Custer Gallatin land allocation.

Appendix F: Glossary of Terms Used in the Analysis

The glossary defines terms used throughout the document. If a term's definition(s) is associated with a particular species, management direction, or originates from a specific source, the source is cited or applicable direction is referenced with the following bracketed abbreviations:

- [CFR] Code of Federal Regulations
- [ESA] Endangered Species Act
- [FSM] Forest Service Manual
- [Forest Service Handbook] Forest Service Handbook
- [GBCS] Conservation Strategy for the Grizzly Bear in the Greater Yellowstone Ecosystem (U.S. Fish and Wildlife Service 2016)
- [NRLMD] Northern Rockies Lynx Management Direction 2007
- [NWGC] National Wildfire Coordinating Group
- [LCAS] Lynx Conservation and Assessment Strategy 2013

activity area A land area affected by a management activity to which soil quality standards are applied. An activity area must be feasible to monitor and includes harvest units within timber sale areas, prescribed burn areas, grazing areas or pastures within livestock allotments, riparian areas, recreation areas, and alpine areas. Temporary roads, skid trails, and landings are considered to be part of an activity area.

activity caused soil disturbance Soil disturbance created by management activities such as: timber harvesting, temporary road construction, slash pile burning, livestock grazing, and/or recreational use of Forest Service lands.

adaptive management The general framework encompassing the three phases of planning: assessment, plan development, and monitoring (36 Code of Federal Regulations 219.5). This framework supports decision-making that meets management objectives while simultaneously accruing information to improve future management by adjusting the plan or plan implementation. Adaptive management is a structured, cyclical process for planning and decision-making in the face of uncertainty and changing conditions with feedback from monitoring, which includes using the planning process to actively test assumptions, track relevant conditions over time, and measure management effectiveness.

administrative site A location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on National Forest System lands include, but are not limited to, ranger stations, warehouses, and guard stations. [GBCS]

administrative pasture A pasture for use primarily by government stock to facilitate the administration and management of public lands. Administrative pastures may also be used as a forage reserve for other administrative needs and resource management during times of drought, wildland fire, and so forth.

aircraft A device that is used or intended to be used for flight in the air. Motorized aircraft include types of aircraft including: Airplane, an engine-driven fixed-wing aircraft heavier than air, that is supported in

flight by the dynamic reaction of the air against its wings; helicopter, a rotorcraft that, for its horizontal motion, depends principally on its engine-driven rotors; rotorcraft, a heavier-than-air aircraft that depends principally for its support in flight on the lift generated by one or more rotors (14 CFR 1.1).

air quality related value (AQRV) Is any resource that is identified as sensitive to air pollution including vegetation, soils, water, fish, cultural resources, wildlife, visibility, etc., and can be used to provide information about the air quality within the landscapes where they exist.

airshed Is typically a geographic area where the air is subject to similar conditions of air pollution. Under the Clean Air Act amendments, all national parks larger than 6,000 acres, national wilderness areas larger than 5,000 acres which existed before August 7, 1977, and certain designated Tribal areas are considered class I airsheds and are provided the most protection through limitation of additional air pollution.

all American road Designated by the Department of Transportation, the most scenic byways are designated all-American roads, which must meet two out of the six intrinsic qualities. The designation means they have features that do not exist elsewhere in the United States and are unique and important enough to be tourist destinations unto themselves.

allotment Is a designated area of land available for permitted livestock grazing (36 CFR 222). A grazing allotment can include National Forest System and non-National Forest System lands. Permits are issued for the use of allotments or portions of allotments. Allotments are in active status when grazing permits have been issued; allotments are in vacant status when they do not have a grazing permit issued; and allotments are in closed status when they have been closed to livestock grazing by administrative decision or action (FSM 2205).

allotment infrastructure Are structural improvements (for example, fences, water developments) that are necessary for grazing management.

allotment management plan Is a document that specifies the program of action designated to reach a given set of objectives. It is prepared in consultation with the permittee(s) involved; prescribes the manner in and extent to which livestock operations will be conducted in order to meet the multiple-use, sustained yield, economic, and other needs and objectives as determined for the lands, involved; describes the type, location, ownership, and general specifications for the range improvements in place or to be installed and maintained on the lands to meet the livestock grazing and other objectives of land management; and contains such other provisions relating to livestock grazing and other objectives as may be prescribed by the Chief, Forest Service, consistent with applicable law (36 CFR 222).

animal unit month Is the amount of dry forage required by one mature cow of approximately 1,000 pounds or its equivalent, for 1 month, based on a forage allowance of 26 pounds per day. Not synonymous with animal month.

appropriate management level Means the maximum number of wild horses, excluding the current years foal crop, that can be maintained within an area without causing deterioration of rangeland resources.

at-risk species Are federally recognized threatened, endangered, proposed, and candidate species, and species of conservation concern that are relevant to the plan area and planning process (36 CFR 219.6(b)).

bare ground All land surface not covered by vegetation, rock or litter.

barrier A physical obstruction which precludes the movement of animals.

baseline Levels for grizzly bears reflect the environmental conditions (such as, secure habitat, developed sites, and permitted livestock grazing allotments) at a specific point in time within the primary conservation area. The baseline is the year 1998 for most bear management subunits. Subunits identified in the 2003 GBCS as in need of improvement for secure habitat include Gallatin #3, Madison #2, and Henrys Lake #2. These subunits adopt a new baseline for secure habitat of the level achieved through full implementation of the Gallatin Forest Travel Management Plan (2007).

bear-human conflict An interaction between a bear and human in which bears either do, or attempt to, injure people, or in which humans may or may not be present, but bears damage property, kill or injure livestock, damage beehives, obtain anthropogenic foods or attractants or agricultural crops.

best management practice The method(s), measure(s), or practice(s) selected by an agency to meet its nonpoint source control needs. Best management practices include but are not limited to structural and nonstructural controls and operation and maintenance procedures. Best management practices can be applied before, during, and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters (36 Code of Federal Regulations 219.19) or into the air. Best management practices is a term also used in other resource areas to describe methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing impacts from grazing, invasive weed establishment and spread, etc.) while making use of the resources.

best available control technology An emission limitation based on the maximum degree of reduction of each pollutant subject to regulation (under the Clean Air Act) emitted from or which results from any major emitting facility (169(3))

biodiversity The variety and abundance of plants, animals, and other living organisms and the ecosystem processes, functions, and structures that sustain them. Biodiversity includes the relative complexity of species and communities across the landscape at a variety of scales, connected in a way that provides for the genetic diversity to sustain species over the long term.

biological weed control Refers to any technique that involves the use of natural enemies of weed plants to control the germination of weed seeds or the spread of established plants. This is a rapidly expanding area of weed control with many examples. Examples of biological weed control include sheep to control tansy ragwort or leafy spurge, cinnabar moth and the tansy flea beetle to control tansy ragwort, the chrysolira beetle to control St. John's Wort, and the use of goats to control brush on rangeland.

biophysical settings A grouping of potential vegetation types based on broad climatic and site conditions, such as temperature and moisture gradients. Also see “potential vegetation types.”

boreal forest (lynx) A forest type with which lynx and snowshoe hares are strongly associated. The predominant vegetation of boreal forest is conifer trees, primarily species of spruce (*Picea* spp.) and fir (*Abies* spp.). At the landscape scale within each region, natural and human-caused disturbance processes (for example, fire, wind, insect infestations and forest management) influence the spatial and temporal distribution of lynx populations by affecting the distribution of good habitat for snowshoe hares (U.S. Fish and Wildlife Service Critical Habitat Final Rule 2009).

broadcast burn A management treatment where a prescribed fire is allowed to burn over a designated area within well-defined boundaries. A broadcast burn is used for reduction of fuel hazard, as a resource management treatment, or both.

candidate species A status for(1) U.S. Fish and Wildlife Service candidate species, a species for which the U.S. Fish and Wildlife Service possesses sufficient information on vulnerability and threats to support a proposal to list as endangered or threatened, but for which no proposed rule has yet been published by the U.S. Fish and Wildlife Service; for (2) National Marine Fisheries Service candidate species, a species that is: (i) the subject of a petition to list and for which the National Marine Fisheries Service has determined that listing may be warranted, pursuant to section 4(b)(3)(A) of the Endangered Species Act (16 United States Code (U.S.C.) 1533(b)(3)(A)), or (ii) not the subject of a petition but for which the National Marine Fisheries Service has announced in the *Federal Register* the initiation of a status review.

capability and potential Potential is the highest ecological status an area can attain given no political, social, or economical constraints. Capability is the highest ecological status an area can attain given political, social, or economical constraints. These constraints are often referred to as limiting factors. The capability of an area of land and/or water to produce resources, supply goods and services, and allow resource uses under a specified set of management practices and at a given level of management intensity. Capability depends upon current conditions and site conditions (climate, slope, landform, soils, and geology), as well as the application of management practices (for example, silviculture systems, protection from fires, insects, and disease).

cave course The area between lines projected from the outside walls of an underlying cave passage at a 45-degree angle to the surface.

CERCLA site A location, managed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA/Superfund) 42 U.S.C. §9601 et seq. (1980) in order to clean up or prevent a release of hazardous materials into the environment.

chemical weed control Refers to any technique that involves the application of a chemical (herbicide) to weeds or soil to control the germination or growth of the weed species. Refer to applicable weed management National Environmental Policy Act decisions ("Custer National Forest Noxious Weed Management" Environmental Impact Statement and Record of Decision (2006) and the "Gallatin National Forest Noxious and Invasive Weed Treatment Project" Environmental Impact Statement and Record of Decision (2005)) or subsequent National Environmental Policy Act for approved herbicides for use on the Custer Gallatin National Forest.

coarse woody debris Woody material derived from tree limbs, boles and roots in various stages of decay that is larger than three inches in diameter.

commercial use/activity A use or activity on National Forest System lands (a) where an entry or participation fee is charged, or (b) where the primary purpose is the sale of a good or service, and in either case, regardless of whether the use or activity is intended to produce a profit (36 Code of Federal Regulations 251.51).

communication facility A building, tower, or other physical improvement (buildings and towers do not have to be combined to be considered a facility) that is built or installed to house and/or support authorized communications equipment.

composition The biological elements within the different levels of biological organization, from genes and species to communities and ecosystems.

connectivity The ecological conditions that exist at several spatial and temporal scales that provides landscape linkages that permit the exchange of flow, sediments, and nutrients; the daily and seasonal movements of animals within home ranges; the dispersal and genetic interchange between populations; and the long distance range shifts of species, such as in response to climate change (36 Code of Federal Regulations 219.19). Connectivity needs vary by species. For example, Yellowstone cutthroat trout are able to move upstream to spawn as long as there is not a barrier to connectivity, such as a dam.

conservation The protection, preservation, management, or restoration of natural environments, ecological communities, and species.

control With Respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), control is defined as any activity or action taken to reduce the population, contain, limit the spread, or reduce the effects of an invasive species. Control activities are generally directed at established free-living infestations, and may not necessarily be intended to eradicate the targeted infestation in all cases.

cool season grass Cool season grasses (for example, various wheatgrass, needlegrass, bromegrass, bluegrass species) start their growth early in spring and continue that growth while cool temperatures and rain prevails. They grow best when temperatures are 40 to 75 °F. They do not grow well during the hot periods in midsummer and often become semi-dormant. They may grow again in the fall as temperatures cool and late summer precipitation replenishes soil moisture. Thus, there may be two growing periods for these grasses: early spring and late summer or fall. Cool season species generally exhibit the C3 photosynthetic pathway; also known as a C3 plant.

cover The elements of the environment used by an animal for hiding. Cover varies depending upon the species or the time of year and may include a variety of vegetation types as well as topography. The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas.

cover type The existing vegetation of an area described by the dominant plant species. Also see "forest type."

critical habitat (For a threatened or endangered species) (1) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 United States Code 1533), on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the

species at the time it is listed in accordance with the provisions of section 4 of the Endangered Species Act (16 USC 1533), upon a determination by the Secretary that such areas are essential for the conservation of the species. Endangered Species Act, sec. 3 (5)(A), (16 USC 1532 (3)(5)(A)). Critical habitat is designated through rulemaking by the Secretary of the Interior or Commerce. Endangered Species Act, sec. 4 (a)(3) and (b)(2) (16 United States Code 1533 (a)(3) and (b)(2)).

critical load Is the level of atmospheric deposition below which significant harmful effects on specified sensitive elements of the environment are not expected to occur. Atmospheric deposition is the process by which particles, aerosols, dust, and gases move from the atmosphere to the earth's surface via rain, snow, fog, or dry deposition.

critical viewing platform Popular or iconic travelways and viewpoints identified through a public review process from where people have a substantial interest in the appearance of the National Forest landscape.

crown fire A fire that advances from top to top of trees or shrubs more or less independent of a surface fire.

culmination of mean annual increment of growth See mean annual increment of growth.

cultural weed control Refers to any technique that involves maintaining field conditions such that weeds are less likely to become established and/or increase in number. Examples of cultural weed control would be avoiding overgrazing of rangeland, using well-adapted competitive forage species, and maintaining good soil fertility.

culturally significant area Areas that have spiritual, historic, scientific or social value for past, present or future generations including the significance of the natural elements of land, water and vegetation.

culturally significant species Plant and animal species whose existence and symbolic value are essential to the stability of a cultural group through time. Sweet grass and buffalo are examples for Northern Plains Tribes.

dams (jurisdictional) Refer only to jurisdictional dams as defined in the Forest Service Handbook 7506. Jurisdictional dam is defined by statutes and rules as Forest Service operated dams and dams operated by the holder of a special use authorization that meet one or more of the following criteria:

1. Dams with a high hazard potential classification;
2. Dams with a significant hazard potential classification; and
3. Dams with a low or undetermined hazard potential classification that:
    a. Equal or exceed 25 feet in height and exceed 15 acre-feet in storage, or
    b. Exceed 6 feet in height and equal or exceed 50 acre-feet in storage.

deciduous (plant) Plant parts, particularly leaves, that are shed at regular intervals, or at a given stage of development, for example, a deciduous plant regularly loses or sheds its leaves.

decision document A record of decision, decision notice, or decision memo (36 Code of Federal Regulations 220.3).

designated area An area or feature identified and managed to maintain its unique special character or purpose; some categories of designated areas may be designated only by statute and some categories may be established administratively in the land management planning process or by other administrative processes of the Federal executive branch; examples of statutorily designated areas are national heritage areas, national recreational areas, national scenic trails, wild and scenic rivers, wilderness areas, and wilderness study areas; examples of administratively designated areas are experimental forests, research natural areas, scenic byways, botanical areas, and significant caves (36 Code of Federal Regulations 219.19).

desired condition A description of specific social, economic, and/or ecological characteristics of the plan area, or a portion of the plan area, toward which management of the land and resources should be directed. Also see chapter 1.

detrimental soil compaction A specific type of detrimental soil disturbance most often caused by the use of ground based mechanical equipment where soil grains are rearranged so they are brought in closer contact with one another thereby reducing the volume of pore space and average pore size in the soil thereby increasing soil bulk density. Effects are severe enough to reduce soil productivity over an extended period of time.

detrimental soil disturbance Management-caused soil disturbance in vegetation management areas that persists on the landscape for an extended period of time (minimum of 40 years) unless restoration actions are taken and is severe and extensive enough to reduce soil productivity and/or the ability of the land to provide desired goods and services.

detrimental soil displacement A specific type of detrimental soil disturbance most often caused by mechanical removal of surface soil layers associated with land grading, temporary road construction, or land scarification. The physical removal of upper soil layers.

desired nonnative species Species that contribute to conservation or management objectives such as, providing habitat or food resources providing desirable ecosystem functions.

developed recreation site A recreation site that has a development scale of 3, 4, or 5 (FSM 2330.5–Definitions).

developed recreation site An area that has been improved or developed for recreation (36 CFR § 261.2). A recreation site on National Forest System lands that has a development scale of 3, 4, or 5:

- Development scale 3 (moderate site modification) is where facilities are about equal in terms of protection of the natural site and user comfort. The contemporary/rustic design of improvements is usually based on use of native materials. Inconspicuous vehicular traffic controls are usually provided. Roads may be hard surfaced and trails formalized, with the primary access over high-standard roads. Development density is about three family units per acre. Interpretive services are informal if offered but generally direct.

- Development scale 4 (heavy site modification) is where some facilities are designed strictly for comfort and the convenience of users and facility design may incorporate synthetic materials. There may be extensive use of artificial surfacing of roads and trails. Vehicular traffic control usually is obvious, with the primary access usually over paved roads. Development density is

three to five family units per acre. Plant materials are usually native. Interpretive services, if offered, are often formal or structured.

- Development scale 5 (extensive site modification) is where facilities are mostly designed for the comfort and convenience of users and usually include flush toilets; may include showers, bathhouses, laundry facilities, and electrical hookups. Synthetic materials are commonly used. Walks may be formal and trails may be surfaced. Access is usually by high-speed highways. The development density is five or more family units per acre. Plant materials may be non-native. Formal interpretive services are usually available. Plant materials may be non-native, and mowed lawns and clipped shrubs are not unusual.

diameter breast height The diameter of a tree measured 4.5-feet above the ground on the uphill side of the tree, or diameter of a log measured 4.5-feet from the large end of the log.

dispersed camping The practice of camping outside of a developed campground, including designated dispersed camping, dispersed vehicular camping, or back-country camping.

dispersed recreation General term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, climbing, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

distribution line The facility in an electric power system used to carry electricity from the transmission system to individual consumers. Distribution lines typically operate in a voltage range of 4kV to 46kV.

disturbance An event that alters the structure, composition, or function of terrestrial or aquatic habitats; any relatively discrete event in time that disrupts ecosystem, watershed, community, or species population structure and/or function and changes resources, substrate availability, or the physical environment. Natural disturbances include, among others, drought, floods, wind, fires, wildlife grazing, and insects and pathogens; human-caused disturbances include actions such as timber harvest, livestock grazing, roads, and the introduction of exotic species (36 Code of Federal Regulations 219.19).

disturbance activities Are activities which result in notable vegetation removal, soil disturbance, and/or altered behavior of wildlife. Examples include, but are not limited to road construction and timber harvest.

disturbance regime A description of the characteristic types of disturbance on a given landscape; the frequency, severity, size, and distribution of these characteristic disturbance types, and their interactions. The natural pattern of periodic disturbances, such as fire or flooding (36 Code of Federal Regulations 219.19).

driver (ecology) See “ecosystem driver.”

duff the partly decayed organic matter, such as leaves and branches, on the forest floor.

early detection The process of finding, identifying, and quantifying new, small, or previously unknown infestations of aquatic or terrestrial invasive species prior to (or in the initial stages of) its establishment as free-living expanding population. Early detection of an invasive species is typically coupled with integrated activities to rapidly assess and respond with quick and immediate actions to eradicate, control, or contain it.

ecological condition The biological and physical environment that can affect the diversity of plant and animal communities, the persistence of native species, and the productive capacity of ecological systems; ecological conditions include habitat and other influences on species and the environment; examples of ecological conditions include the abundance and distribution of aquatic and terrestrial habitats, connectivity, roads and other structural developments, human uses, and invasive species (36 Code of Federal Regulations 219.19).

ecological diversity See "ecosystem diversity."

ecological integrity The quality or condition of an ecosystem when its dominant ecological characteristics (for example, composition, structure, function, connectivity, and species composition and diversity) occur within the natural range of variation and can withstand and recover from most perturbations imposed by natural environmental dynamics or human influence (36 Code of Federal Regulations 219.19).

ecological site Is a conceptual division of the landscape that is defined as a distinctive kind of land based on recurring soil, landform, geological, and climate characteristics that differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its ability to respond similarly to management actions and natural disturbances (interagency definition).

ecological site descriptions (ESDs) Are standard reference for natural resource information for all Federal agencies and other interested groups/organizations. ESDs are tools to assess lands for potential values or resource specific concerns, along with information on wildlife habitat, carbon pools, vulnerability to loss or degradation, and site restoration potential. ESDs include the known rangeland plant community types that may occur on a site as well as the single climax plant community. Ecological site descriptions should relate degree of soil development, hydrologic and ecosystem functions, and other ecological knowledge to the known plant communities. The ecological site description also outlines the processes of change that may occur on a site as well as showing change as a deviation from the climax or natural plant community.

ecological threshold See threshold

ecological sustainability See sustainability

ecosystem (36 Code of Federal Regulations 219.19) A spatially explicit, relatively homogeneous unit of the Earth that includes all interacting organisms and elements of the abiotic environment within its boundaries. The term ecosystem can be used at a variety of scales; for the forest Plan, the ecosystem is referred to spatially at the forestwide and geographic area scales as well as within potential vegetation types. An ecosystem is commonly described in terms of its:

- *composition:* The biological elements within the different levels of biological organization, from genes and individual plant and animal species to communities (such as cover types).
- *structure:* The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical (size class and structure class) and horizontal (density) distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity.

- *function:* Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.
- *connectivity*: See connectivity.

ecosystem diversity The variety and relative extent of ecosystems (36 Code of Federal Regulations 219.19).

ecosystem driver A natural or human-induced factor that directly or indirectly causes a change in an ecosystem. Examples include climate change, fire events, invasive species and flooding.

ecosystem resilience See "resilience."

ecosystem services The benefit(s) people obtain from an ecosystem, including: (1) provisioning services, such as clean air and fresh water, energy, fuel, forage, fiber, and minerals; (2) regulating services, such as long-term storage of carbon; climate regulation; water filtration, purification, and storage; soil stabilization; flood control; and disease regulation; (3) supporting services, such as pollination, seed dispersal, soil formation, and nutrient cycling; and (4) cultural services, such as educational, aesthetic, spiritual and cultural heritage values, recreational experiences and tourism opportunities (36 Code of Federal Regulations 219.19).

ecosystem stressor See stressors.

ecotone Ecotones exist where there is a gradual blending of the two ecosystems across a broad area or they may be manifested as a sharp boundary line. Without periodic disturbance processes such as fire, plants in competition extend themselves on one side of the ecotone as far as their ability to maintain themselves allows. Beyond this competitors of the adjacent community can take over. As a result, the ecotone can represent a shift in dominance. This zone shifts in location and condition based on climate influences, successional processes, and disturbance processes. Examples include transition zones in riparian areas between terrestrial and aquatic ecosystems or between non-forested grass/shrub communities and forested communities.

ectomycorrhizal associations Ectomycorrhizal associations are mutualistic associations between higher fungi and Gymnosperms or Angiosperms. They are formed predominantly on the fine root tips of the host, which are unevenly distributed throughout the soil profile, being more abundant in topsoil layers containing humus, than in underlying layers of mineral soil

effective separation Is the spatial or temporal separation between wild sheep and domestic sheep or goats to minimize the potential for association and the probability of transmission of diseases between species (Wild Sheep Working Group 2012).

eligible river Within the Wild and Scenic River act, eligibility is an evaluation of whether a candidate river is free-flowing and possesses one or more outstandingly remarkable values (ORVs). If found eligible, a candidate river is analyzed as to its current level of development (water resources projects, shoreline development, and accessibility) and a tentative classification is made that it be placed into one or more of three classes—wild, scenic or recreational. Eligibility and classification represent an inventory of existing conditions.

endangered species A species that the Secretary of the Interior or the Secretary of Commerce has determined is in danger of extinction throughout all or a significant portion of its range. Endangered species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Endangered species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 224.101.

environmental document A written analysis that provides sufficient information for a responsible official to undertake an environmental review. Examples include: a categorical exclusion, an environmental assessment, and an environmental impact statement (36 Code of Federal Regulations 219.19).

environmental justice community A community with a meaningfully greater minority or low-income population, compared to the population as a whole. For the purposes of the Custer Gallatin plan, environmental justice communities are defined as those communities where either low-income or minority populations (or both) comprise at least 20 percent of the total community population.

ephemeral streams A channel or draw reach that only carries surface flow in direct response to precipitation. An ephemeral channel may or may not have a defined bed and banks, depending on the physiographic setting, climate, and dominant weather patterns.

eradication With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), eradication is defined as the removal or elimination of the last remaining individual invasive species in the target infestation on a given site. It is determined to be complete when the target species is absent from the site for a continuous time period (that is, several years after the last individual was observed). Eradication of an infestation of invasive species is relative to the time-frame provided for the treatment procedures. Considering the need for multiple treatments over time, certain populations can be eradicated using proper integrated management techniques.

facilities Real property assets managed for the administration of the national forest. Examples are buildings, administrative pastures & fencing, water systems, wastewater systems, campgrounds, picnic areas, interpretive sites, etc. For the purpose of this document, it does not include roads, trails, dams, or airfields.

fire control See “fire suppression.”

fire exclusion The disruption of a characteristic pattern of fire intensity and occurrence (primarily through fire suppression).

fire frequency The number of times that fires occur within a defined area and time period.

fire intensity The amount of energy released by a fire, however no single metric (including reaction intensity, fireline intensity, temperature, residence time, radiant energy and others) captures all of the relevant aspects of fire energy. Fireline intensity is most frequently used in forested ecosystems.

fire regime A general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention but including the influence of prehistoric human burning. The five natural fire regimes are classified based on the average number of years between fires combined with the severity of the fire (the amount of vegetation replacement), and its effect on the dominant overstory vegetation. The five natural fire regimes on the Custer Gallatin National Forest are in table 71.

Table 70. The five natural fire regimes on the Custer Gallatin National Forest

Fire Regime Group	Frequency (Fire Return Interval)	Severity	Representative Vegetation Types/Habitats
I	0 to 35 years	Nonlethal, low intensity to mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Ponderosa pine, dry-site Douglas-fir Open forest, woodland, shrub and savanna structures maintained by frequent non-lethal fire; also includes mixed severity forest that create a mosaic of different age classes, post-fire open forests; mean fire return interval can be greater than 35 years in systems with high temporal variation.
II	0 to 35 years	Stand-replacing (greater than 75 percent of the dominant overstory vegetation replaced)	Drier grasslands; cool-site sagebrush (such as mountain big sagebrush) Shrub or grasslands maintained or cycled by frequent fire; fire typically remove non-sprouting shrubs, tops of sprouting shrubs and most tree regeneration.
III	35 to 100+ years	Nonlethal and mixed severity (less than 75 percent of the dominant overstory vegetation replaced)	Interior dry-site shrub communities (such as warm-site sagebrush-Wyoming big sagebrush, basin big sagebrush); moist-site Douglas-fir/lodgepole pine forests Mosaic of different age post fire open forest, early to mid-seral forest structure stages, and shrub and herb dominated patches, maintained by infrequent fire events.
IV	35 to100+ years	Stand-replacing, high intensity (greater than 75 percent of the dominant overstory vegetation replaced)	Lodgepole pine Large patches of similar age, post-fire structures; early to mid-seral forests cycled by infrequent fire events.
V	200+ years	Generally stand-replacing, high intensity. Can include nonlethal and mixed severity	Boreal forest and high elevation conifer forest; lodgepole pine/subalpine fir; subalpine fir; whitebark pine Variable size patches of shrub and herb dominated structures, or early- to mid- to late-seral forest depending on the type of biophysical environment. Cycled by rare fire or other disturbance events. Often have complex structures influenced by small gap disturbances and understory regeneration.

fire risk The probability or chance of fire starting determined by the presence and activities of causative agents.

fire severity Describes the immediate effects of fire on vegetation, litter, or soils. Fire severity depends not only on the amount of heat generated by a fire (intensity) but also on the duration and residence time of the fire. While a fast-moving, wind-driven fire may be intense, a long-lasting fire that just creeps along in the forest underbrush could transfer more total heat to plant tissue or soil. In this way, a slow-moving, low intensity fire could have much more severe and complex effects on something like forest soil than a faster-moving, higher-intensity fire in the same vegetation. For this reason, the terms fire intensity and fire severity are not synonymous or interchangeable.

fire suppression The work and activities connected with fire extinguishing operations, beginning with discovery and continuing until the fire is completely extinguished.

fire-adapted species A plant or animal that has evolutionary adaptations to survive and thrive in an ecosystem where fire is a primary driver, including tree species that are termed fire-tolerant as well as

other plant and animal species that have a myriad of other types of adaptations. Some examples of adaptations are the serotinous cones of lodgepole pine, which open only when heated in a fire; rhizomatous (below ground) root systems, which are protected from heat and flame, and color adaptations such as the black-backed woodpecker, which is well-camouflaged against the burned trunk of a tree.

fireline intensity The rate of energy release per unit length of the fire front expressed as BTU per foot of fireline per second or as kilowatts per meter of fireline. This is a physical parameter that is related to flame length. This expression is commonly used to describe the power of wildland fires, but it does not necessarily follow that the severity, defined as the vegetation mortality, will be correspondingly high.

flame length The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity. [NWCG]

floodplain Lowlands bordering a streams which are subject to recurrent flooding. Floodplains are composed of sediments carried by steams and deposited on land during flooding.

flow regime: The temporal patterns of high and low flows in a stream or river. The flow regime is key driver in the geomorphic process that shape river channels, floodplains; can influences shallow water aquifers (for example, hyporheic zone) that return flow to surface waters; and helps shape ecological processes influencing biodiversity of aquatic and riparian organisms.

focal species A small subset of species whose status permits inference to the integrity of the larger ecological system to which it belongs and provides meaningful information regarding the effectiveness of the plan in maintaining or restoring the ecological conditions to maintain the diversity of plant and animal communities in the plan area. Focal species would be commonly selected on the basis of their functional role in ecosystems (36 Code of Federal Regulations 219.19).

forage Non-woody plants available to livestock or wildlife for feed.

forage reserve allotments, also known as grassbanks A designation for allotments on which there is no current term permit obligation for some or all of the estimated livestock grazing capacity and where there has been a determination made to use the available forage on the allotment to enhance management flexibility for authorized livestock use. Forage reserve allotments may be authorized livestock use when there is a loss of forage availability or to resolve short-term resource concerns arising from a variety of factors including but not limited to drought, wildland fire, rangeland restoration activities, litigation or consultation needs, or short-term resolution of resource concerns on other National Forest System allotments (Forest Service Handbook 2209.13, 13.3).

foraging habitat For Canada lynx includes areas that support the primary prey (snowshoe hare) of lynx and has the vegetation structure suitable for lynx to capture prey. These conditions may occur in early successional stands following some type of disturbance, or in older forests with a substantial understory of shrubs and young conifer trees. Coarse woody debris, especially in early successional stages (created by harvest regeneration units and large fires), provides important cover for snowshoe hares and other prey. [LCAS]

forb A herbaceous (herb-like) plant, other than grass or grass-like plants.

foreground (immediate foreground, middleground and background) Distance from a viewer to the National Forest landscape being viewed. Immediate foreground usually refers to up to 300ft; foreground is up to ½ mile from the viewer; middleground is from ½ to 4 miles from a viewer; background is from 4 miles to the horizon.

forest land An area at least 10 percent occupied by forest trees of any size or formerly having had such tree cover and not currently developed for non-forest uses. Lands developed for non-forest use include areas for crops, improved pasture, residential or administrative sites, improved roads of any width and adjoining road clearing, and power line clearings of any width (36 Code of Federal Regulations 219.19).

forest plan A document that guides sustainable, integrated resource management of the resources within a plan area and within the context of the broader landscape, giving due consideration to the relative values of the various resources in particular areas (36 Code of Federal Regulations 219.1(b)). Consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 United States Code 528–531), the Forest Service manages National Forest System lands to sustain the multiple use of its renewable resources in perpetuity while maintaining the long-term health and productivity of the land.

free-flowing river From the Wild and Scenic River Act, as applied to any river or section of a river means existing or flowing in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the [National System] shall not automatically bar its consideration for such inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the [National System].

fuels management An act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological or manual means, or by fire, in support of land management objectives. [NWCG]

fuels treatment The manipulation or removal of dead or live plant materials to reduce the likelihood of ignition and/or lessen potential damage and resistance to fire control (example treatments include, lopping, chipping, crushing, piling and burning). [NWCG]

function Ecological processes that sustain composition and structure, such as energy flow, nutrient cycling and retention, soil development and retention, predation and herbivory, and natural disturbances such as wind, fire, and floods.

functioning at risk Are wetland or riparian conditions that are in limited functioning condition; however, existing hydrologic, vegetative, or geomorphic attributes make them susceptible to degradation.

geographic area (GA) A spatially contiguous land area identified within the plan area. A geographic area may overlap with a management area (36 Code of Federal Regulations 219.19).

geographic information system (GIS) A computer process that links database software to graphics (spatially explicit) software and provides database and analytic capabilities.

goals (GO) Broad statements of intent, other than desired conditions, usually related to process or interaction with the public. Also see chapter 1.

gradient (stream) The slope of a streambed.

grassbank See forage reserve allotment

grazing authorizations and reauthorizations Grazing permits with term status of 10 years or with temporary status of 1 year. Upon expiration of an existing grazing permit, they can be reauthorized provided eligibility and qualification requirements are met. Upon sale of base property or permitted livestock, a grazing permit with term status may be authorized to the purchaser of base property or permitted livestock as the preferred applicant, provided eligibility and qualifications requirements are met(36 CFR 222).

grazing permit Authorizes livestock to use National Forest System or other lands under Forest Service control for the purpose of livestock production. Term permits are issued for up to 10 years with priority for renewal at the end of the term. On-and-off grazing permits are permits with specific provisions on rangelands only part of which is National Forest System lands or other lands under Forest Service control. Private land grazing permits are permits issued to persons who control grazing lands adjacent to or within national forest proclaimed boundary and who waive exclusive grazing use of these lands to the United States for the full period the permit is to be issued (36 CFR 222). Temporary permits are issued for up to 1 year. Examples include livestock use permits for transportation livestock to persons engaged in commercial packing or dude ranching.

greater sage-grouse general habitat Includes habitat outside of priority sage grouse habitat (see definition below) that may be essential for summer brood rearing needs, wintering areas, and/or providing habitat connectivity between priority habitats.

greater sage-grouse priority habitat (also referred to as core habitat) Includes key habitats identified by state sage-grouse conservation plans or other sage-grouse conservation efforts as those areas of greatest biological importance for maintaining sage-grouse representation, redundancy and resilience across the landscape. Priority habitats are typically identified as those areas surrounding locations with the largest number of displaying male sage grouse on leks (for example, breeding grounds).

greater Yellowstone area (GYA) Generally high elevation mountainous public and private lands in northwestern Wyoming, southwestern Montana, and eastern Idaho surrounding Yellowstone National Park.

greater Yellowstone ecosystem (GYE) See greater Yellowstone area (GYA).

green ash draws See woody draws.

greenline The first line of perennial vegetation on or near the water's edge along a stream. The greenline is an important location for monitoring riparian areas because it is vulnerable to impacts from management that are related to streambank instability and channel widening and/or incision.

Grizzly Bear Conservation Strategy (GBCS) A document compiled by the U.S. Fish and Wildlife Service that describes the regulatory framework for management of the Greater Yellowstone Ecosystem grizzly bear population and its habitat (U.S. Fish and Wildlife Service 2016).

ground-disturbing activity Is an activity that results in a change in the vegetation cover or topography and that may cause or contribute to sedimentation. Ground-disturbing activities include, but are not limited to, removing vegetation cover, excavating, filling, and grading.

groundwater-dependent ecosystem A community of plants, animals, and other organisms whose extent and life processes depend on groundwater. Examples include riparian areas, wetlands, groundwater-fed lakes and streams, cave and karst systems, aquifer systems, fens, springs, and seeps.

guideline (GDL) A constraint on project and activity decision-making that allows for departure from its terms, so long as the purpose of the guideline is met. Also see chapter 1.

habitat type A habitat type classification provides an ecologically based system of land stratification in terms of vegetation potential. As the habitat type is the basic unit in classifying land units or sites based on their biotic potential, it emphasizes similarities and differences in ecosystems that carry implications for a variety of land management objectives. Habitat types or habitat type groups can have similar biophysical characteristics, and similar function and response to disturbances. A habitat type will produce similar plant communities at natural or near natural conditions. Also see "potential vegetation type."

hardened stream crossing Is a trail or travelway constructed across a stream that allows livestock to cross or to drink with minimal disturbance to the streambank and channel.

hazard tree a tree that has the potential to cause property damage, personal injury or fatality in the event of a failure, where failure is the mechanical breakage of a tree or tree part. Failures often result from the interaction of defects, weather factors, ice or snow loading or exposure to wind. Tree hazards may include dead or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of people or property (a target). Defects are flaws in a tree that reduce its structural strength. Trees may have single or multiple defects, which may or may not be detectable. Failures result in accidents only if they strike a target.

hazardous fuels mitigation See fuels management and fuels treatment

high landslide potential An area of land having a high potential for large and/or rapid landslides or flows to occur. Projecting the likelihood of such events is most often based on evidence of past land instability or mass failure events associated unstable geologic stratigraphy. In this instance, the term "landslide" is being used broadly sense to cover range of different of mass failure events.

high mass failure potential See "high landslide potential."

high severity fire/high severity fire regime See "stand-replacing fire."

high use areas Areas that receive high levels of visitor use such as trailheads, developed campgrounds, etc.

highly erodible soils Soils that are inherently susceptible to soil erosion (water or wind) due to physical properties of surface soil layers, such as soil texture or the amount of rock fragments in the soil and/or topographic factors such as steep slopes.

historic properties 36 CFR 800.16 defines historic properties as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian Tribe or native Hawaiian organization and that meet the National Register criteria."

hydric Environment or habitat containing plenty of moisture, very wet.

hydric vegetation See "hydrophilic vegetation."

hydrophilic vegetation Is plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Hydrophilic vegetation can be described as obligate wetland or facultative wetland species. Obligate wetland species are nearly always found in wetlands; its frequency of occurrence in wetlands is 99 percent or more. Facultative wetland species occurs more often than not in wetlands; its frequency of occurrence in wetlands is between 67 and 99 percent of the time.

independent identically distributed (IID) The underlying assumption made of the sample population for statistical inference using a completely random sampling design.

Indian Tribe Any Indian or Alaska Native Tribe, band, nation, pueblo, village, or other community that is included on a list published by the Secretary of the Interior under section 104 of the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a-1).

infrastructure The collection of human-built improvements such as roads, trails, airfields, facilities, and dams that serve the mission of the national forest.

inherent capability of the plan area The ecological capacity or ecological potential of an area characterized by the interrelationship of its physical elements, its climatic regime, and natural disturbances (36 Code of Federal Regulations 219.19).

inherent scenic attractiveness Classification of how visually unique, distinctive and valued specific scenery is. This refers to enduring visual qualities of the landscape, which may be enhanced by positive cultural features. Ratings, that compare landscapes within ecoregions, are based upon commonly-held perceptions of beauty related to land forms, rock features, vegetation patterns and water features, along with concepts such as uniqueness, variety (including seasonal), mystery and vividness of the line, form, color and texture of the scenery.

- *Class A-Distinctive:* Areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality. These landscapes have strong positive attributes.

- *Class B-Typical/Common:* Areas where landform, vegetation patterns, water characteristics and cultural features combine to provide ordinary or common scenic quality. These landscapes have positive yet common visual attributes.

- *Class C-Indistinctive:* Areas where landform, vegetation patterns, water characteristics and cultural features have low scenic quality. Often, water and rock form of any consequence are missing. These landscapes have weak or very few visual attributes.

inherent (soil) productivity The ability of the soil to produce a specific type and amount of native vegetation based on physical and chemical properties inherited from the unique combination of soil forming factors and processes that have occurred at a site and without the addition of soil amendments.

In-lieu lots Are unoccupied lots in a designated recreation residence tract and are not available for new holders to build new recreation residences.

inner gorge A geomorphic feature that consists of the steep side slope (typically greater than 35 percent) immediately adjacent to the stream channel, below the first break in slope above the stream channel, and above which the hillslope/topography is less steep. Debris sliding and avalanching are often associated with the inner gorge.

integrated pest management (IPM) Is a pest (in this context, an invasive species) control strategy based on the determination of an economic, human health, or environmental threshold that indicates when a pest population is approaching the level at which control measures are necessary to prevent a decline in the desired conditions (economic or environmental factors). In principle, IPM is an ecologically-based holistic strategy that relies on natural mortality factors, such as natural enemies, weather, and environmental management, and seeks control tactics that disrupt these factors as little as possible. Integrated pest management techniques are defined within four broad categories of weed control: (1) biological, (2) cultural, (3) mechanical/physical, and (4) chemical techniques. While each situation is different, the following major components are common to all IPM programs: prevention, early detection/rapid response, control and management, restoration, and collaboration.

integrated resource management Multiple use management that recognizes the interdependence of ecological resources and is based on the need for integrated consideration of ecological, social, and economic factors (36 Code of Federal Regulations 219.19).

integrity (ecology) See “ecological integrity.”

intermittent stream A stream that has perennial water in discontinuous manner during all or art of the year, often in pools, longitudinally. Intermittent streamflow can be the result of a discontinuous supply from springs or ground-water seepage, a discontinuous supply from surface sources, including runoff of rainfall and seasonal snowmelt, or both. Fish-bearing intermittent streams are distinguished from non-fish-bearing intermittent streams by the presence of any species of fish for any duration. Many intermittent streams may be used as spawning and rearing streams, refuge areas during flood events in larger rivers and streams or travel routes for fish emigrating from lakes or as semi-permanent habitat in perennial pools of intermittent streams in the pine savanna region.

invasive species An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that causes, or is likely to cause, harm and that is exotic to the ecosystem it has infested. Invasive species infest both aquatic and terrestrial areas and can be identified within any of the following four taxonomic categories: plants, vertebrates, invertebrates, and pathogens (Executive Order 13112).

invasive species treatment Any activity or action taken to directly prevent, control, or eradicate a targeted invasive species. Treatment of an invasive species infestation may not necessarily result in the elimination of the infestation, and multiple treatments on the same site or population are sometimes required to affect a change in the status of the infestation. Treatment activities typically fall within any of

the four general categories of integrated management techniques: biological treatments, cultural treatments, mechanical treatments, or chemical treatments. For example, the use of domestic goats to control invasive plants would be considered a biological treatment; the use of a pesticide to control invasive fishes would be characterized as a chemical treatment; planting of native seeds used to prevent invasive species infestations and restore a degraded site would be considered a cultural treatment technique; developing an aquatic species barrier to prevent invasive species from spreading throughout a watershed would be considered a physical treatment; cleaning, scraping, or otherwise removing invasive species attached to equipment, structures, or vehicles would be considered a mechanical treatment designed to directly control and prevent the spread of those species.

key ecosystem characteristic The dominant ecological characteristic(s) that describes the composition, structure, function and connectivity of terrestrial, aquatic and riparian ecosystems that are relevant to addressing important concerns about a land management plan. Key ecosystem characteristics are important to establishing or evaluating plan components that would support ecological conditions to maintain or restore the ecological integrity of ecosystems in the plan area.

land management plan See "forest plan."

landscape A defined area irrespective of ownership or other artificial boundaries, such as a spatial mosaic of terrestrial and aquatic ecosystems, landforms, and plant communities, repeated in similar form throughout such a defined area (36 Code of Federal Regulations 219.19).

landtype A unit shown on an inventory map with relatively uniform potential for a defined set of land uses. Properties of soils landform, natural vegetation, and bedrock are commonly components of landtype delineation used to evaluate potentials and limitations for land use.

linkage areas Support seasonal, exploratory, or dispersal movements of animals beyond the home range to facilitate demographic and genetic connectivity between geographically separate patches of habitat; key linkage areas are typically located near the Custer Gallatin National Forest boundary, where wildlife movement is desirable for genetic exchange between blocks of public lands, but may be restricted by permanent development such as highways, railroads, agricultural lands and residential areas.

livestock A type of domestic animal raised for commercial production purposes (for example, cattle).

Livestock handling activities Sorting, loading/unloading or bedding livestock.

Livestock trailing Is the deliberate movement of livestock controlled by one or more herders, from one location to another. This usually occurs when moving between pastures or from private to public lands and vice versa.

locally adapted species Local seed collections or genetically appropriate cultivated varieties from local or regional environments similar to conditions that existed at the project site prior to disturbance.

long-term persistence means a species continues to exist in the plan area over a sufficiently long period that encompasses multiple generations of the species, the time interval between major disturbance events, the time interval to develop all successional stages of habitat types, or the time interval needed for the overall ecosystem to respond to management (Forest Service Handbook 1909.12, chapter 20, section 23.13c. 1c.)

lotic ecosystems Are running water habitat such as rivers, streams, and springs.

low gradient, alluvial channels Are low-gradient stream channels made up of loose sediments called alluvium. They are able to change their shape or course over time. Low-gradient alluvial channels are often associated with Rosgen stream channel types C and E.

low severity fire/low severity fire regime Fires that burn only the lowest vegetation layer, which may be composed of grasses, herbs, low shrubs, mosses, or lichens. In forests, woodlands, or savannas, low severity fires are generally surface fires and do not cause extensive mortality in the overstory vegetation.

maintain In reference to an ecological condition: To keep in existence or continuance of the desired ecological condition in terms of its desired composition, structure, and processes. Depending upon the circumstance, ecological conditions may be maintained by active or passive management or both (36 Code of Federal Regulations 219.19).

management activity caused See "activity caused."

management area A land area identified within the plan area that has the same set of applicable plan components. A management area does not have to be spatially contiguous (36 Code of Federal Regulations 219.19).

management system A timber management system includes even-aged stand and uneven-aged management (36 Code of Federal Regulations 219.19).

matrix habitat Within designated critical habitat for Canada lynx, includes non-boreal forest types such as hardwood forests, dry coniferous forest, grasslands, shrublands, rock, water, and other landscape conditions that do not support snowshoe hares, but which occur between patches of boreal forest such that lynx are likely to travel through such habitat while accessing patches of boreal forest within a home range.

mean annual increment of growth The total increment of increase in volume of a stand (standing crop plus thinning removals) up to a given age divided by that age. Culmination of mean annual increment of growth is the age in the growth cycle of an even-aged stand at which the average annual rate of increase of volume is at a maximum. In land management plans, mean annual increment is expressed in cubic measure and is based on the expected growth of stands, according to intensities and utilization guidelines in the plan (36 Code of Federal Regulations 219.19).

mechanical / physical weed control - refers to any technique that involves the use of mechanical or physical means to control weeds, such as hand pulling/grubbing or mowing.

mesic A type of habitat that is moderately moist.

minerals The Forest Service defines three types of mineral (and energy) resources:

- *locatable minerals*: Commodities such as gold, silver, copper, zinc, nickel, lead, platinum, etc. and some nonmetallic minerals such as asbestos, gypsum, and gemstones.
- *saleable mineral materials*: Common varieties of sand, stone, gravel, cinders, clay, pumice and pumicite.

- *leasable minerals*: Commodities such as oil, gas, coal, geothermal, potassium, sodium phosphates, oil shale, and sulfur. On acquired lands solid minerals are leasable.

mineral encumbrances Those outstanding mineral rights, including reserved and outstanding private mineral rights, existing oil and gas leases and locatable mineral rights.

minimum impact suppression tactics Guidelines for fire suppression and post-fire activities that use procedures, tools and equipment that are commensurate with the fire's potential or existing behavior and produce the least impact to the environment without compromising safety or the effectiveness of suppression efforts.

mitigate To avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

mixed severity fire/mixed severity fire regime A combination of nonlethal, low intensity to stand-replacing fire effects within the perimeter of a single fire, or across consecutive events. Mixed-severity fire regimes give rise to unique patch dynamics and ecosystem responses.

monitoring A systematic process of collecting information to evaluate effects of actions or changes in conditions or relationships (36 Code of Federal Regulations 219.19).

montane The Custer Gallatin has termed its mountainous Middle Rockies Ecoregion area as Montane and refers to the settings of the Beartooth, Yellowstone, Gardiner, Bozeman, and Hebgen Lake Ranger Districts. Montane ecosystems of the Custer Gallatin include the Madison, Henrys Lake, Gallatin, Bridger, Bangtail, Crazy, Absaroka, Beartooth, and Pryor mountain ranges. The montane ecosystem is characterized by altitudinal zonation of semi-desert and foothill vegetation, coniferous forests on the lower mountain slopes, and alpine tundra toward the upper. Due to aridity, forests are sometimes restricted to northern and eastern slopes. Although south- and west-facing slopes receive comparable precipitation, they are hotter and evaporation is higher. Consequently, they support fewer trees and are covered by shrubs and grasses. Lodgepole pine, Douglas-fir, subalpine fir, Engelmann spruce, limber pine, and whitebark pine are the predominant conifer vegetation. The lower slopes of the mountains are dominated by grasslands and shrublands.

motorized route A National Forest System road or trail that is designated for motorized use on a motor vehicle use map pursuant to 36 Code of Federal Regulations 212.51

multiple use The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output, consistent with the Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528-531) (36 Code of Federal Regulations 219.19).

municipal watershed 36 CFR 251.9 authorizes the Chief of the Forest Service to enter into agreements with municipalities to restrict the use of National Forest System lands from which water is derived to protect the municipal water supplies (FSM 2542) within a given watershed area.

national ambient air quality standards (NAAQS) Are national air quality standards established by the U.S. Environmental Protection Agency (EPA) under authority of the Clean Air Act (CAA; 40 C.F.R. 50) to protect public health and public and ecosystem welfare.

national forest scenic byway The Chief of the Forest Service can designate routes traversing National Forest System lands as national forest scenic byways.

National Forest System Includes national forests, national grasslands, and the National Tallgrass Prairie (36 Code of Federal Regulations 219.19 and 219.62).

National Forest System Road (National Forest SystemR) Part of a system of permanent roads determined to be needed for the use, protection, and enjoyment of the national forest.

National Forest System Trail (National Forest SystemT) Part of a system of permanent trails determined to be needed for the use, protection, and enjoyment of the National Forest.

National Wild and Scenic Rivers System was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

National Wilderness Preservation System The Wilderness Act, signed into law in 1964, created the National Wilderness Preservation System and recognized wilderness as "an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain.

native species An organism that was historically or is present in a particular ecosystem as a result of natural migratory or evolutionary processes; and not as a result of an accidental or deliberate introduction into that ecosystem. An organism's presence and evolution (adaptation) in an area are determined by climate, soil, and other biotic and abiotic factors (36 Code of Federal Regulations 219.19).

natural range of variation The variation of ecological characteristics and processes over scales of time and space that are appropriate for a given management application. The natural range of variation is a tool for assessing the ecological integrity and does not necessarily constitute a management target or desired condition. The natural range of variation can help identify key structural, functional, compositional, and connectivity characteristics, for which plan components may be important for either maintenance or restoration of such ecological conditions.

nonconforming uses when used in the context of Wilderness or Recommended Wilderness are uses or facilities within those areas that don't conform to wilderness policy nor are allowed specifically as an exception in the wilderness act which designated the area.

nonfunctional condition Are wetland or riparian conditions that clearly are not providing adequate vegetation, landform, or woody material to dissipate stream energy associated with moderately high flows, and thus are not reducing erosion, improving water quality, etc.

noxious weed Is a regulatory term defined through Federal and individual State statutes. A noxious weed is defined by Montana Code Annotated (MCA 7-22-2101) as, "any exotic plant species established

or that may be introduced in the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities." A noxious weed is defined by South Dakota Code (chapter 38-22, article 12:62:02:01) as "a weed which the commission has designated as sufficiently detrimental to the state to warrant enforcement of control measures." Noxious weeds are invasive plants are capable of successfully expanding their populations into new ecosystems beyond their natural range and can create lasting impacts to native plant communities. Impacts can be exacerbated by fire, native pests, weather events, human actions, and environmental change.

nurse plant Is a plant that creates an environment that is less severe for young seedlings growing underneath it or that promotes conditions for recovery.

objective (OBJ) A concise, measurable, and time-specific statement of a desired rate of progress toward a desired condition or conditions. Also see chapter 1.

old growth forests Are ecosystems distinguished by old trees and related structural attributes. Old growth encompasses the later stages of stand development that typically differ from earlier stages in a variety of characteristics which may include tree size, accumulations of large dead woody material, number of canopy layers, species composition, and ecosystem function. For the purposes of this document, old growth is defined specifically as forests that meet the minimum criteria established for the Northern Region of the Forest Service.

old growth habitat A community of forest vegetation characterized by a diverse stand structure and composition along with a significant showing of decadence. The stand structure will typically have multi-storied crown heights and variable crown densities. There is a variety of tree sizes and ages ranging from small groups of seedlings and saplings to trees of large diameters exhibiting a wide range of defect and breakage both live and dead, standing and down. The time it takes for a forest stand to develop into an old-growth habitat condition depends on many local variables such as forest type, habitat type, and climate. Natural chance events involving forces of nature such as weather, insect, disease, fire, and the actions of man also affects the rate of development of old-growth stand conditions. Old-growth habitat may or may not meet the definition for old growth forest.

open and unclaimed or unoccupied lands This term is trademark of the treaties negotiated in the 1850s. The term applied to public domain lands held by the United States that had not been fenced or claimed through a land settlement act. Today "open and unclaimed lands" applies to lands remaining in the public domain (for the purposes of hunting, gathering foods, and grazing livestock or trapping). The courts have ruled that National Forest System lands reserved from the public domain are open, unclaimed, or unoccupied land, and as such the term applies to reserved treaty rights on National Forest System land.

outfitting/outfitter guide To rent on, or deliver to, National Forest System lands for pecuniary remuneration or other gain any saddle or pack animal, vehicle, boat, camping gear, or similar supplies or equipment (36 Code of Federal Regulations 251.51).

outstandingly remarkable values (ORVs) Within the Wild and Scenic Rivers Act, categories of scenery, recreation, geology, fisheries, wildlife, historic/ cultural, or other similar values.

perennial A stream that flows continuously throughout most years and whose upper surface generally stands lower than the water table in the region adjoining the stream.

Peripherals Are plant species whose occurrence are at the extreme edge of their present natural range.

permanent road A National Forest System Road intended to remain in service to highway vehicles over the long-term. The prerequisite for design, construction, operation, and maintenance are for a sustained service life. For example, features such as bridges and culverts, are designed with a service life of 50 years or more. (Related: Temporary Road)

permit (special use) A use authorization which provides permission, without conveying an interest in land, to occupy and use National Forest System land or facilities for specified purposes, and which is both revocable and terminable (36 Code of Federal Regulations 251.51).

permitted grazing Authorizes livestock use on National Forest system lands. Authorizing permits include grazing permits for commercial livestock production purposes, outfitter/guide special-use permits with associated pack animals, or other special-use permits.

persistence Continued existence.

pine savanna The Custer Gallatin has termed its intermixed rolling plains and ponderosa pine region of the Northwestern Great Plains Ecoregion area as Pine Savanna and refers to the settings of the Sioux and Ashland Ranger Districts. Vegetation includes ponderosa pine, hardwood trees, shrubs, forbs and graminoids, expressing all gradations of cover. On the driest sites ponderosa pine is short and generally open, grown with grass understories. Moist north-facing sites have dense stands of taller ponderosa pine, with shrub and herbaceous understories, including some species of the mountain forests to the west. Draws and ravines that support many hardwood trees (green ash, box elder, aspen) and shrubs also dissect the landscape. Grasses include needlegrass, wheatgrass, needle and thread grass, and blue grama. Shrubs include sagebrush, chokecherry, and snowberry.

plan A document, or set of documents, that provides management direction for an administrative unit of the National Forest System developed under the requirements of the 2012 Planning Rule or a prior planning rule (36 Code of Federal Regulations 219.19). Also see “forest plan.”

plan area The National Forest System lands covered by a forest plan (36 Code of Federal Regulations 219.19).

planned wildland fire See prescribed burn or prescribed fire.

plant and animal community A naturally occurring assemblage of plant and animal species living within a defined area or habitat (36 Code of Federal Regulations 219.19).

porcelanite Fused shales and clay, that occur in the roof or floor of burned coal seams.

potential vegetation type/potential vegetation group An assemblage of habitat types on the basis of similar biophysical environments, such as climate, hydrology, slope and soil characteristics. This biophysical environment influences the vegetation characteristics and ecosystem processes that occur. The vegetation communities and conditions that would develop over time given no major natural or human disturbances (the climax plant community) would be similar within a particular potential vegetation type classification. See “habitat type.”

prevention With respect to invasive species management, prevention measures include a wide range of actions and activities to reduce or eliminate the chance of an invasive species entering or becoming established in a particular area. Preventative activities can include projects for education and awareness as well as more traditional prevention activities such as vehicle/equipment cleaning, boat inspections, or native plant restoration plantings. Restoration activities typically prevent invasive species infestations by improving site resilience, and reducing or eliminating the conditions on a site that may facilitate or promote invasive species establishment.

prevention of significant deterioration (PSD) Is an Environmental Protection Agency (EPA) program that applies to new major sources or major modifications of existing sources of air pollutants in areas that meet the national ambient air quality standards (NAAQS). PSD does not prevent sources from increasing emission but is designed to protect public and ecosystem, health, and welfare, to preserve, protect, and enhance the air quality in class I areas such as National Parks and class I wilderness areas, to protect economic growth, and to ensure that any decision to permit an increase in air pollution undergoes careful evaluation and consideration which includes State and Federal air regulatory agencies, land management agencies, and the general public.

prescribed burn or **prescribed fire** A fire ignited via management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and National Environmental Policy Act requirements (where applicable) must be met, prior to ignition. [NWCG]

primary conservation area An area identified in the Greater Yellowstone Ecosystem GBCS to be managed as a source area for the grizzly bear population, where continuous occupancy by grizzly bears would be maintained. Habitat within the PCA receives the most stringent protection. The Primary Conservation Area is the same geographic area as the Greater Yellowstone Ecosystem Grizzly Bear Recovery Zone identified in the Grizzly Bear Recovery Plan (USDI 1993) prior to de-listing of the Yellowstone grizzly bear population in 2017.

primary rangelands Are those areas that produce forage and that are near water sources where primary grazing activity occurs

productivity The capacity of National Forest System lands and their ecological systems to provide the various renewable resources (such as timber) in certain amounts in perpetuity. In land management, productivity is an ecological term, not an economic term (36 Code of Federal Regulations 219.19).

project An organized effort to achieve an outcome on National Forest System lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 Code of Federal Regulations 219.19).

project road A name coined during the Gallatin National Forest Travel Plan. These roads were determined to be no longer needed as a system road and would be removed from the system of roads. The roads were planned to be decommissioned and returned to the natural landscape. Reuse of the road corridor would be planned as part of a future project.

projected timber sale quantity (PTSQ) Is a subset of the projected wood sale quantity and is an estimate of the quantity of timber expected to be sold during the plan period. The volume in the projected timber sale quantity is the volume that meets utilization standards.

projected wood sale quantity (PWSQ) Is an estimate of the volume of all timber and other wood products that is expected to be sold during the plan period from expected harvests for any purpose (except salvage harvest or sanitation harvest) on all lands in the plan area. The projected wood sale quantity includes all woody material likely to be sold from these harvests whether or not the woody material meets the utilization standards.

proper functioning condition For riparian areas have adequate vegetation, landform, or woody material present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; capture sediment and aid floodplain development; improve floodwater retention and ground-water recharge; develop root masses that stabilize streambanks against erosion, and maintain channel characteristics. Proper functioning condition for groundwater dependent ecosystems (for example, seeps, springs, wetlands, shorelines) have adequate vegetation, landform, or debris present to: dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize islands and shoreline features against cutting action; restrict water percolation; develop diverse ponding characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; A wetland or riparian area in proper functioning condition will, in turn, provide associated values, such as fish and wildlife habitat, recreation opportunities; and support greater ecological diversity.

proposed action A project, activity, or action that a Federal agency aims to implement or undertake, and which is the subject of an environmental analysis. Proposed action is a specific term defined under the National Environmental Policy Act.

proposed species A type of animal or plant that is proposed by the U.S. Fish and Wildlife Service, or the National Marine Fisheries Service, through the *Federal Register* to be listed for protection under Section 4 of the Endangered Species Act (36 Code of Federal Regulations 219.19).

Pryor Mountain Wild Horse Range The combination of Pryor Mountain agency and private rangelands authorized for use by wild horses. Not to be confused with “wild horse range” (see definition below) which is a special designation pertaining to only the Bureau of Land Management portion of the Pryor Mountain Wild Horse Range.

Pryor Mountain Wild Horse Territory Means the National Forest System lands identified as having been used by a wild horse herd as its habitat in 1971 at the time of the passage of the Wild Free Roaming Horse and Burro Act (P.L. 92-195) (December 15, 1971).

public involvement A process designed to broaden the information base upon which agency decisions are made. The process involves informing the public about Forest Service activities, plans, and decisions, and participation in the planning processes which lead to final decision making.

rangelands Are land on which the indigenous vegetation (climax or natural potential) is predominantly grasses, grass-like plants, forbs, or shrubs and is managed as a natural ecosystem. If plants are introduced, they are managed similarly. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, marshes, and meadows (Society for Range Management, 2005).

rangeland health Is the degree to which the integrity of the soil, vegetation and ecological processes are sustained.

range improvements Are any activity or program on or relating to rangelands which is designed to improve production of forage, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, or provide habitat for livestock and wildlife.

rapid response With respect to invasive species (plant, pathogen, vertebrate, or invertebrate species), rapid responses are defined as the quick and immediate actions taken to eradicate, control, or contain infestations that must be completed within a relatively short time to maximize the biological and economic effectiveness against the targeted invasive species. Depending on the risk of the targeted invasive species, rapid response actions may be supported by an emergency situation determination and emergency considerations would include the geographic extent of the infestation, distance from other known infestations, mobility and rate of spread of the invasive species, threat level and potential impacts, and available treatments.

reclamation Is the restoration of a site or resource to a desired condition to achieve management objectives or stated goals (Society for Range Management 1999).

recommended wilderness An area that has been determined to meet the criteria to be designated as wilderness and is proposed in this land management plan by the forest Supervisor to be recommended to Congress for inclusion into the National Wilderness Preservation System.

recovery As pertains to the Endangered Species Act, is the improvement in the status of a listed species to the point at which listing as federally endangered or threatened is no longer appropriate (36 Code of Federal Regulations 219.19). This definition is for the purposes of the land management planning regulation at 36 Code of Federal Regulations part 219 and Land Management Planning Handbook 1909.12, and with respect to threatened or endangered species (36 Code of Federal Regulations 219.19).

recreation The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations. Also see "sustainable recreation" (36 Code of Federal Regulations 219.19).

recreation event Any temporary event, such as race, run, ride, or tournament, which is organized, using national forest lands and facilities, and which an entrance fee is required to participate. Event proponents may be for-profit or not-for-profit, individuals, or organizations.

recreation opportunity spectrum Is the system that the Forest Service describes an opportunity to participate in a specific recreation activity in a particular recreation setting to enjoy desired recreation experiences and other benefits that accrue. Recreation opportunities include nonmotorized, motorized, developed, and dispersed recreation on land, water, and in the air (36 Code of Federal Regulations 219.19).The six classes are the following:

- *Primitive:* The primitive recreational opportunity spectrum setting is large, remote, wild, and predominately unmodified landscapes. There is no motorized activity and little probability of seeing other people. Primitive recreational opportunity spectrum settings are managed for quiet solitude away from roads, people, and development. There few, if any facilities or developments. Most of the primitive recreation opportunity spectrum settings coincide with designated wilderness boundaries.

- *Semi-primitive nonmotorized:* The semi-primitive nonmotorized recreation opportunity spectrum settings include areas of the forest managed for nonmotorized use. Mountain bikes and other mechanized equipment are often present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area. These settings are not as vast or remote as the primitive recreational opportunity spectrum settings, but offer opportunities for exploration, challenge, and self-reliance.
- *Semi-primitive motorized*: The semi-primitive motorized recreation opportunity spectrum settings area(s) of the forests are managed for backcountry motorized use on designated routes. Routes are designed for off highway vehicles and other high clearance vehicles. This setting offers visitors motorized opportunities for exploration, challenge, and self-reliance. Mountain bikes and other mechanized equipment are also sometimes present. Rustic facilities are present for the primary purpose of protecting the natural resources of the area or providing portals to adjacent areas of primitive, or semi-primitive, nonmotorized areas.
- *Roaded natural*: The roaded natural setting is managed as natural appearing with nodes and corridors of development that support higher concentrations of use, user comfort, and social interaction. The road system is well defined and can typically accommodate sedan travel. System roads also provide easy access to adjacent in semi-primitive motorize, semi-primitive nonmotorized and primitive areas.
- *Rural*: The rural settings represent the most developed recreation sites and modified natural settings Facilities are designed primarily for user comfort and convenience.
- *Urban*: The urban setting is characterized by a substantially developed environment although the background may have natural appearing elements. Highly developed ski areas and resorts are examples of an urban setting on National Forest System lands.

recreation setting The social, managerial, and physical attributes of a place that, when combined, provide a distinct set of recreation opportunities. The Forest Service uses the recreation opportunity spectrum to define recreation settings and categorize them into six distinct classes: primitive, semi-primitive nonmotorized, semi-primitive motorized, roaded natural, rural, and urban. Also see “recreation opportunity” (36 Code of Federal Regulations 219.19).

recreational river Within the Wild and Scenic River act, a tentative classification of those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and may have undergone some impoundments or diversion in the past.

recreational livestock Includes animals used by recreation visitors to pack items while visiting the national forest. Typically includes equines, llamas, goats, sheep, and dogs.

refugia Specific site locations and habitat conditions that support populations of organisms that are limited to small fragments of their geographic range. Climate change refugia refers to areas relatively buffered from contemporary climate change over time that enable persistence of valued physical, ecological, and socio-cultural resources.

regeneration The renewal of a forest, whether by natural or artificial means. This term may also refer to a tree crop itself.

regional endemics Are plant species that are unique to a specific geographic region which makes them unique and more vulnerable to extinction. Because they are only found in certain locations, they may require special conservation efforts.

research natural area A physical or biological unit in which current natural conditions are maintained insofar as possible. These conditions are ordinarily achieved by allowing natural physical and biological processes to prevail without human intervention. However, under unusual circumstances, deliberate manipulation may be utilized to maintain the unique feature that the research natural area was established to protect (FSM 4063.05).

reserved treaty rights The reserved rights doctrine holds that any rights that are not specifically addressed in a treaty are reserved to the Tribe. In other words, treaties outline the specific rights that the Tribes gave up, not those that they retained. The courts have consistently interpreted treaties in this fashion, beginning with United States v. Winans, 198 U.S. 371, 25 S. Ct. 662, 49 L. Ed. 1089 (1905), in which the U.S. Supreme Court ruled that a treaty is "not a grant of rights to the Indians, but a grant of rights from them." Any right not explicitly extinguished by a treaty or a Federal statute is considered to be "reserved" to the Tribe.

resilience (ecological) The capacity of a (plant or animal) community or ecosystem to maintain or regain normal function and development following disturbance.

resistance The ability of a community to avoid alteration of its present state by a disturbance (Helms 1998)

responsible official The official with the authority and responsibility to oversee the planning process and to approve a plan, plan amendment, and plan revision. (36 Code of Federal Regulations 219.19 and 219.62).

restore To renew by the process of restoration (36 Code of Federal Regulations 219.19).

restoration The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed; ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystems sustainability, resilience, and health under current and future conditions (36 Code of Federal Regulations 219.19).

restrictive soil features Adverse physical or chemical features in the soils, either within surface soil horizons, subsoil horizons, or underlying substate materials that restrict plant growth. These include shallow depths to soft or hard bedrock, surface or subsoil materials with abundant hard rock fragments, defined as greater than 35% rock fragment in topsoil horizons or greater than 60% hard rock fragments in subsoil or substrate materials, saline or sodic soil conditions, excessively high soil pH (pH>8.6) or excessively low soil pH (pH<4.0), or the presence of dense hardpan layers at shallow depths (<20inches).

retardant In terms of wildfire suppression, retardant is a substance intended to slow the rate of fire spread by cooling and coating fuels, depleting the fire of oxygen, and slowing the rate of fuel combustion as the retardant’s inorganic salts change how fuels burn.

revegetation Is establishing or re-establishing desirable plants on areas where desirable plants are absent or of inadequate density, by management alone (natural revegetation) or by seeding or transplanting (artificial revegetation) (Society for Range Management 1999).

riparian area A three-dimensional ecotone of interaction that include terrestrial and aquatic ecosystems that extend into the groundwater, above the canopy, and outward across the floodplain, up the near-slopes that drain to the water, laterally into the terrestrial ecosystem, and along the water course at variable widths (36 Code of Federal Regulations 219.19).

riparian ecosystem A transition between the aquatic ecosystem and the adjacent upland terrestrial ecosystem. A riparian ecosystem is identified by soil characteristics and by distinctive vegetative communities that require free or unbounded water.

riparian management zone (RMZ) A portion, or portions, of the watershed where riparian-dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines (36 Code of Federal Regulations 219.19). RMZ widths are defined as follows:

- *Category 1, fish-bearing streams:* riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the 100-year floodplain, or to a distance equal to the height of two site-potential trees, or 300-feet slope distance (600 feet, including both sides of the stream channel), whichever is greatest.
- *Category 2, permanently flowing nonfish bearing streams*: riparian habitat conservation areas consist of the stream and the area on either side of the stream extending from the edges of the active channel to the top of the inner gorge, or to the outer edges of the riparian vegetation, or to a distance equal to the height on one site-potential tree, or 150-feet slope distance (300 feet, including both sides of the stream channel), whichever is greatest.
- *Category 3, ponds, lakes, reservoirs, and wetlands greater than 1 acre:* riparian habitat conservation areas consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or to the extent of the seasonally saturated soil, or to the distance of the height of one site-potential tree, or 150-feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs, or from the edge of the wetland, pond, or lake, whichever is greatest.
- *Category 4, Seasonally flowing or intermittent streams, wetlands less than 1 acre, and lands identified as landslide prone:* This category includes features with high variability in size and site-specific characteristics. At a minimum, the riparian habitat conservation area must include: (1) the intermittent stream channel and the area to the top of the inner gorge; (2) the intermittent stream channel or wetland and the area to the outer edges of the riparian vegetation; (3) for priority watersheds as identified in appendix C, the area from the edges of the stream channel , wetland, or landslide prone terrain to a distance equal to the height of one site-potential tree, or 100 feet slope distance, whichever is greatest; or (4) for watersheds not identified as priority watersheds, the area from the edges of the stream channel, wetland, or landslide prone terrain to a distance equal to the height of one-half site potential tree, or 50-feet slope distance, whichever is greater.

riparian wildlife habitat An environment that occurs along lakes, rivers, streams, springs, and seeps where the vegetation and microclimate are influenced by year-round or seasonal water and associated

high water tables. Plant and animal species in these areas are more productive and diverse than on nearby uplands, making these areas very important to many wildlife species.

risk A combination of the likelihood that a negative outcome will occur and the severity of the subsequent negative consequences (36 Code of Federal Regulations 219.19).

road A motor vehicle route more than 50-inches wide, unless identified and managed as a trail. (36 Code of Federal Regulations 212.1, FS Manual 7705):

- *Decommissioned:* the stabilization and restoration of an unneeded road to a more natural state (36 Code of Federal Regulations 212.1).
- *Forest road or trail*: a route wholly or partly within or adjacent to and serving the National Forest System that is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 Code of Federal Regulations 212.1– Definitions)
- *Maintenance level*: a term for the level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (Forest Service Handbook 7709.59, 62.32)
    - Level 1: These are roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.
    - Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.
    - Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.
    - Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds.
    - Level 5: Assigned to roads that provide a high degree of user comfort and convenience.
- *National Forest System:* A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 Code of Federal Regulations 212.1)
- *Temporary*: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 Code of Federal Regulations 212.1).

road decommissioning Removal from the road system and taken out of service. The unneeded road corridor would be returned to the natural landscape.

road management objectives (RMO) Management intent for the design, construction, operation, and maintenance of a National Forest System Road. Examples of the criteria includes roadway width, surface

type, maintenance levels, speed limits, drainage design, traffic service levels, etc. Each road has a collection of objectives housed in the corporate database.

roadless The 2001 Roadless Rule establishes prohibitions on road construction, road reconstruction, and timber harvesting on 58.5 million acres of inventoried roadless areas on National Forest System lands. The intent of the 2001 Roadless Rule is to provide lasting protection for inventoried roadless areas within the National Forest System in the context of multiple-use management.

Rosgen channel type classification Is a widely applied river classification system based on common patterns of channel morphology. The classification scheme assigns a channel type based on channel slope, width to depth ratio, bed material, entrenchment ratio and sinuosity. This method can be used to collect the raw data to assess mechanisms for predicting channel stability, erosion risk, aggradation, channel enlargement, sediment transport capacity, degradation, lateral or longitudinal migration, and hydraulic relations. As an example, Rosgen channel types C and E are low gradient streams that are very sensitive to disturbance and can be rapidly adjusted and converted to other stream types in relatively short time periods. Rosgen C and E systems rely on well-developed floodplains with dense vegetation (often sedges and rushes) that helps stabilize the banks.

sacred site Executive Order 13007 Indian Sacred Sites defines an Indian Sacred Site as "any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian Tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its established religious significance to, or ceremonial use by, an Indian religion; provided that the Indian Tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site."

Sagebrush habitat In relationship to greater sage grouse habitat in the plan area, this includes Wyoming big sagebrush (Artemisia tridentata var. wyomingensis), mountain big sagebrush (A. tridentata var. vaseyana), and silver sagebrush (A. cana).

sage-grouse habitat—general habitat management areas National Forest System lands that are occupied seasonally or year-round habitat outside of priority habitat management areas where some special management would apply to sustain the greater sage-grouse population. The boundaries and management strategies for general habitat management areas are derived from and generally follow the preliminary general habitat boundaries.

sage-grouse habitat—priority habitat management areas National Forest System lands identified as having highest habitat value for maintaining sustainable greater sage-grouse populations. The boundaries and management strategies for priority habitat management areas are derived from and generally follow the preliminary priority habitat boundaries. Priority habitat management areas largely coincide with areas identified as priority areas for conservation in the Conservation Objectives Team report.

salvage harvest Is a harvest of trees for the purpose of removing logs that would contribute to fuel loads, in a post-fire event.

sanitation harvest Is a harvest of trees for the purpose of removing insects or diseases from a stand of trees. Sanitation harvesting is used to prevent the diseases or pests from spreading to other nearby trees.

scenery management system Is a systematic approach to inventory, analyze, manage and monitor the scenic resources. This system provides a process to determine the relative value and importance of the national forest scenery and assist in establishing overall resource objectives.

scenic character Is a combination of the physical, biological, and cultural images that gives an area its scenic identity and contributes to its sense of place. Scenic character provides a frame of reference from which to determine scenic attractiveness and to measure scenic integrity. (2012 Planning Rule and 36 Code of Federal Regulations 219.19) The scenic character description incorporates the visible natural physical and biological features, as well the context and ways the scenery is viewed and experienced. A scenic character description also includes the viewing context and associations that viewers have with that scenery based upon visible historic and cultural elements and significant and broadly relevant special places.

scenic integrity objectives Serve as thresholds of allowable visual dominance by landscape modifications and deviations from the valued scenic character, and describe the lowest allowable scenic integrity level for an area. They describe the degree to which a landscape is visually perceived to be complete when compared to the scenic character of that area.

- *Very high*: Landscapes where the valued scenic character is intact with minute if any deviations. The scenic character and sense of place is expressed at the highest possible level. These landscapes generally provide for ecological change only.
- *High:* Landscapes in which the valued scenic character appears intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the scenic character so completely and at such a scale that they are not evident.
- *Moderate:* Landscapes in which the valued scenic character appears slightly altered. Noticeable deviations must remain visually subordinate to the scenic character being viewed. Management activities are subordinate to the attributes described within the described scenic character of the area.
- *Low:* Landscapes in which the valued scenic character appears altered. Deviations begin to dominate the scenic character being viewed but borrow valued attributes such as size, shape, edge effect and pattern of natural openings vegetation type changes or architectural styles outside of the landscape being viewed. Management activities are visible and sometimes dominant features on the landscape.
- *Very low:* Landscape where the valued scenic character appears heavily altered. Deviations may strongly dominate the valued scenic character and do not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside of the landscape being viewed. Management activities are visible and dominate the views of the overall landscape.

scenic river Within the Wild and Scenic River Act, a tentative classification of those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped but accessible in places by roads.

scion A detached living portion of a plant, such as a bud or shoot, often a branch tip, that is grafted onto the root-bearing part of another plant.

secure habitat An area with low levels of human disturbance or habitat that allows a wildlife species to remain in a defined area despite an increase in stress or disturbance. The components of security habitat can include vegetation, topography, the size of the patches of vegetation, road density, distance from roads, intensity of the disturbance, and seasonal timing of the disturbance. This general definition covers most uses of the term security habitat, except for elk and grizzly bear, which have specific definitions.

secure habitat (big game) Areas at least 0.5-mile away from motorized routes and at least 250 acres in size.

secure habitat (grizzly bear) Areas at least 0.31 mile (500 meters) away from motorized routes and at least 10 acres in size.

sediment delivery The delivery of sediment to a water body via overland flow, mass wasting, human activity, or some other means.

sediment yield The rate of transport of sediment by a stream, generally expressed in terms of tons/year, past a designated "accounting point" in a watershed.

seral A biotic community that is developmental; a transitory stage in an ecologic succession.

seral/structural stage A phase of development of an ecosystem in ecological succession from a disturbed, relatively unvegetated state to a complex, mature plant community.

shrub Perennial, multi-stemmed woody plant that is usually less than 13 to 16 feet in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 16 feet or single-stemmed under certain environmental conditions.

significant cave A cave located on National Forest System lands, managed under authority of the Cave Resource Protection Act (CRPA), which has been determined to contain significant, biota, cultural, geologic, mineralogic or paleontologic, hydrologic, recreational, educational, scientific resources or opportunities.

silviculture The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values.

site capability and potential See "capability and potential."

site preparation A general term for a variety of activities that remove competing vegetation, slash, and other debris that may inhibit the reforestation effort.

site productivity The combined effect of physical and climate properties, soil depth, texture, nutrient load, precipitation, temperature, slope, elevation, and aspect, on tree growth of a specific area of land.

site potential tree The average maximum height of the tallest dominant trees for a given site class.

ski area A site and attendant facilities expressly developed to accommodate alpine or Nordic skiing and from which the preponderance of revenue is generated by the sale of lift tickets and fees for ski rentals, for skiing instruction and trail passes for the use of permittee-maintained ski trails. A ski area may also include ancillary facilities directly related to the operation and support of skiing activities (36 Code of Federal Regulations 251.51).

skid trails A cleared corridor used in timber harvest to transport tress by dragging along the ground to the landing/processing area.

slash The residue left on the ground after felling and other silvicultural operations, or that has accumulated there as a result of storms, fire, or natural pruning.

slash piles Woody residue that has been moved, either mechanically or by hand, into piles for burning.

snag A standing dead tree usually greater than 5 feet in height and 6 inches DBH.

social sustainability See "sustainability" (36 Code of Federal Regulations 219.19).

social experience threshold Based on indicators that define the social and resource conditions to be managed. Encounters are commonly used to indicate visitor experience to reveal levels of unacceptable impacts such as crowding and user conflicts.

special use authorization A written permit, term permit, lease, or easement that authorizes use or occupancy of National Forest System lands and specifies the terms and conditions under which the use or occupancy may occur. (36 Code of Federal Regulations 251.51).

species of conservation concern A species, other than federally recognized threatened, endangered, proposed, or candidate species, that is known to occur in the plan area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long-term in the plan area (36 Code of Federal Regulations 219.9(c)).

soil function Various processes that occur in the soil or at the soil surface and enable the soil to sustain biological productivity, maintain environmental quality, and promote plant and animal health.

soil-landscape An area of land that exhibits either a repeating or continuous pattern of landscape attributes that are apparent both on the ground and on remotely sensed imagery and reflect underlying patterns of specific soil-forming factors: geology, terrain, and native plant community types. Each soil-landscape can be expected to react in a specified manner to management actions at a land management scale.

soil productivity The capacity of a soil to produce a certain yield of crops or other plants with a specified system of management. *Note:* Under extensive management inherent productivity equals soil productivity, unless the soil resource has been degraded.

soil quality The capacity of the soil to function within ecosystem boundaries to sustain biological productivity, maintain environmental quality, and promote plant and animal health relative to inherent conditions prior to any activity caused soil disturbance.

soil restoration Management actions taken specifically to restore soil physical, chemical, or biological properties that have been degraded due to either management caused or natural disturbances.

Source Water Protection Areas The area delineated by a State or Tribe for a public water system (PWS) or including numerous PWSs, whether the source is ground water or surface water or both, as part of a State or Tribal source water assessment and protection program (SWAP) approved by the Environmental

Protection Agency under section 1453 of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)) (36 CFR §219.19) or any subsequent laws applicable to public water systems that provide water for human consumption.

special forest products and plant materials Are products collected from National Forest System lands that include, but are not limited to, bark, berries, boughs, bryophytes, bulbs, burls, Christmas trees, cones, ferns, firewood, forbs, fungi (including mushrooms), grasses, mosses, nuts, pine straw, roots, sedges, seeds, transplants, tree sap, wildflowers, fence material, mine props, posts and poles, shingle and shake bolts, and rails. Special forest products do not include sawtimber, pulpwood, non-sawlog material removed in log form, cull logs, small roundwood, house logs, telephone poles, derrick poles, minerals, animals, animal parts, insects, worms, rocks, water, and soil (36 CFR 223.216).

spotting Behavior of a fire producing sparks or embers that are carried by the wind and which start new fires beyond the zone of direct ignition by the main fire.

stand A community of trees occupying a specific area and sufficiently uniform in canopy composition , age, and size class to be a distinguishable unit, forming a single management entity.

standard (STD) A mandatory constraint on project and activity decision making, established to help achieve or maintain the desired condition or conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. Also see chapter 1.

stand-replacing fire A fire that is lethal to most of the dominant above ground vegetation and substantially changes the vegetation structure. Stand-replacement fires may occur in forests, woodlands and savannas, annual grasslands, and shrublands. They may be crown fires or high severity surface fires or ground fires.

state and transition models State and transition model and concepts are typically captured in ecological site descriptions, provide decision-making tools for land managers, provide a means to represent the complex dynamics of rangeland ecosystems, and are effective communication tools. They provide extensive knowledge of existing and possible rangeland vegetation states, transitions, thresholds or other barriers to change, opportunities for management intervention, and what changes can occur through mismanagement. The vegetation types are called "states," and the processes that cause states to change from one to another are called "transitions." Where states are resistant to change, they are called "steady states." An example of a steady state is where long-lived or otherwise dominant plants occur on a site. These steady-state plant communities change only as a result of such transitions as long periods of above-average moisture or drought, fire, an insect or disease outbreak, or human action. The site factors that impose this high level of stability on a site are called "thresholds."

Stomata Tiny openings or pores in plant tissue that allow for gas exchange. Stomata are typically found in plant leaves but can also be found in some stems.

storm proofing Treatments to roads and trails that increase the resistance to damage from frequent or infrequent weather events. Refer to Forest Service publication Storm Damage Risk Reduction Guide for Low-Volume Roads, October 2015.

streambank alteration/disturbance Streambanks that show signs of sloughing, dislodged stones or logs, and/or trampling from animals (does not include road crossings). Current-year alteration is discernible

from previous years' alteration because of weathering effects of freeze/thaw cycles, rain events, and erosion by stream flow or vegetative regrowth. Types of alteration include shearing, trampling, and trailing.

stressors Factors that may directly or indirectly degrade or impair ecosystem composition, structure or ecological process in a manner that may impair its ecological integrity, such as an invasive species, loss of connectivity, or the disruption of a natural disturbance regime (36 Code of Federal Regulations 219.19). Also see "ecosystem stressor."

structure The organization and physical arrangement of biological elements such as, snags and down woody debris, vertical and horizontal distribution of vegetation, stream habitat complexity, landscape pattern, and connectivity. Also see "forest structure."

stubble height The height of forage plants remaining after grazing has occurred; average stubble height includes both grazed and un-grazed plants (Forest Service Handbook 2209.13 Ch. 90).

succession/successional stage A predictable process of changes in structure and composition of plant and animal communities over time. Conditions of the prior plant community or successional stage create conditions that are favorable for the establishment of the next stage. The different stages in succession are often referred to as "seral," or "successional" stages.

suitability of lands A determination made regarding the appropriateness of various lands within a plan area for various uses or activities, based on the desired conditions applicable to those lands. The terms suitable and suited and not suitable and not suited can be considered the same.

sustainability The capability to meet the needs of the present generation without compromising the ability of future generations to meet their needs. For purposes of this part, "ecological sustainability" refers to the capability of ecosystems to maintain ecological integrity; "economic sustainability" refers to the capability of society to produce and consume or otherwise benefit from goods and services including contributions to jobs and market and nonmarket benefits; and "social sustainability" refers to the capability of society to support the network of relationships, traditions, culture, and activities that connect people to the land and to one another, and support vibrant communities (36 Code of Federal Regulations 219.19).

sustainable recreation The set of recreation settings and opportunities on the National Forest System that is ecologically, economically, and socially sustainable for present and future generations (36 Code of Federal Regulations 219.19).

Sustained substantial disturbance The use of heavy equipment or low-level helicopter flights for vegetation management actions for a total of more than 30 days throughout an entire key linkage area in a calendar year.

sustained yield limit The amount of timber, meeting applicable utilization standards, "which can be removed from [a] forest annually in perpetuity on a sustained-yield basis" (National Forest Management Act at section 11, 16 United States Code 1611; 36 Code of Federal Regulations 219.11(d)(6))). It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the sustained yield limit

is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. Volume from salvage and sanitation timber harvest is not included in calculating the sustained yield limit. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure.

temporary road A single-purpose road constructed, maintained, and operated for short term use, such as access to a short-lived vegetation or mining project. The road is designed and constructed to not only meet the projects' immediate traffic objectives, but to be efficiently removed from service following the project. For example, temporary portable bridges would be used on crossings, slash would be stored on-site for restoration, or use of steep grades and narrow widths to minimize costs. (Related: Permanent Road)

threatened species A species that the Secretary of the Interior or the Secretary of Commerce has determined is likely to become an endangered species within the foreseeable future throughout all, or a significant portion, of its range. Threatened species are identified by the Secretary of the Interior in accordance with the 1973 Endangered Species Act. Threatened species are listed at 50 Code of Federal Regulations sections 17.11, 17.12, and 223.102.

thresholds (ecological) Points in space and time at which one or more of the primary ecological processes responsible for maintaining the sustained equilibrium of the ecological state degrades beyond the point of self-repair. Examples of thresholds include: soil erosion and nutrient loss so severe that some plants cannot grow; invasion of a site by a plant that is so dominant that other plants cannot compete; and change in plant community structure—arrangement of plants on the site—so that fire, a naturally occurring event that directs ecosystem change, cannot occur or occurs in a more destructive way. In the plan area, there are some sites that have crossed a threshold where primary ecological processes have degraded beyond the point of self-repair where meeting desired conditions is unlikely since they are not easily reversed without significant inputs of resources. These areas largely originated from unmanaged activities in the late 1800s and early 1900s. Once an ecosystem crosses a threshold, it is generally very difficult to restore the original composition, structure and ecological processes by changes in management alone. Prohibitively expensive restoration measures (such as, dam removal, plowing or soil modifications) would generally be necessary to restore degraded ecosystems.

thriving natural ecological balance The Wild and Free-Roaming Horses and Burros Act of 1971 requires the Forest Service/Bureau of Land Management to manage wild horses in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands in relationship to other multiple uses (16 USC § 1333(a)). To achieve a "thriving natural ecological balance" on National Forest System lands, wild horses should be managed in a manner that assures land management plan standards and guidelines for upland vegetation and riparian plant communities, watershed function, and habitat quality for animal populations, as well as other site-specific or landscape-level objectives are met. Wild horse herd health is promoted by achieving and maintaining "thriving natural ecological balance."

timber harvest The removal of trees for wood fiber use and other multiple-use purposes (36 Code of Federal Regulations 219.19).

timber production The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 Code of Federal Regulations 219.19).

topsoil lift A specified depth (usually 6-inch increments) of surface mineral soil to be excavated separately from underlying subsoil and substrate materials and replaced as the surface soil layer during backfilling.

total maximum daily load Is a pollution budget and includes a calculation of the maximum amount of a pollutant that can occur in a waterbody and allocated the necessary reductions to one or more pollutant sources (metals, sediment, turbidity, etc.). A total maximum daily load serves as a planning tool and potential starting point for restoration or protection activities with the ultimate goal of attending or maintaining water quality standards.

Traditional Cultural Property A cultural resource that is eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. The entity evaluated for eligibility for inclusion in the National Register of Historic Places must be a tangible property; that is, a district, site, building, structure, or object as defined in 36 CFR 64.4.

trail A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail (36 Code of Federal Regulations 212.1).

trail class The prescribed scale of development for a trail, representing its intended design and management standards.

trail management objectives (TMO) Management intent for the design, construction, operation, and maintenance of a National Forest System Trail. Examples of the criteria includes trailway geometry, surface type, design considerations for allowed uses, maintenance frequencies, etc. Each trail has a collection of objectives housed in the corporate database.

transmission line The facility in an electric power system used to move large amounts of power from one location to a distant location; distinguished from a distribution line by higher voltage, greater power capability, and greater length. Transmission system voltages are typically from 69kV up to 765kV.

treaty rights Those rights or interests reserved in treaties for the use and benefit of Tribes. The nature and extent of treaty rights are defined in each treaty. Only Congress may abolish or modify treaties or treaty rights.

Unmanned Aircraft System (UAS) An aircraft used or intended to be used for flight in the air that has no onboard pilot. This includes all classes of airplanes, helicopters, airships and translational lift aircraft with control over 3 axes (FAA Interim Operational Approval Guidance 08-01-Unmanned Aircraft Systems Operations in the U.S. National Airspace System). In addition to the actual aircraft, a UAS also consists of the ground control station. Forest Service UAS operations will comply with FAA policy and/or regulations applicable to UAS flight operations (FSM 5705–Definitions).

unplanned wildland fire See "wildfire."

untrammeled A term defined in the context of the Wilderness Act as an area where human influence does not impede the free play of natural forces or interfere with natural processes in the ecosystem.

values at risk Ecological, social, and economic assets and resources that could be impacted by fire or fire management actions. Examples include life, property, structures, natural and cultural resources, community infrastructure, public support, economic opportunities such as tourism, and air quality.

vegetation management A process that changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire, timber harvest, or thinning. For the purposes of this document, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, trails, or roads for example, and does not apply to unplanned wildland fire or permitted livestock grazing.

viable population A population of a species that continues to persist over the long term with sufficient distribution to be resilient and adaptable to stressors and likely future environments (36Code of Federal Regulations 219.19).

viewshed The visible portion of the landscape seen from viewpoints. Viewpoints can include residences, recreational facilities, and travel ways.

visual absorption capability Is a classification system used to denote the relative ability of a landscape to accept human alternations without loss of scenic quality.

visual magnitude Is a project-specific tool for assessing and describing the relative visibility and potential effects of a landscape modification, such as a timber harvest unit or construction of a road or facility, on the scenery. It takes into account the distance, slope and aspect relative to an observer, as well as the number of times an area is seen from given observation platforms.

warm season grass Warm-season grasses (for example, blue grama, buffalograss, bluestems) grow during warmer periods when temperatures are 70 to 95 °F. Warm-season grasses use soil moisture more efficiently than cool-season species and often can withstand drought conditions. These grasses have different leaf cellular structures that cause them to be more fibrous, contain more lignin, and be less digestible. Therefore, livestock normally prefer cool season grasses if they are at the same growth stage as warm season species. However, because cool season grasses often enter the reproductive period at about the time that warm season grasses begin growth, livestock normally seek out this new growth from warm-season species. A warm season species generally exhibit the C4 photosynthetic pathway; also known as a C4 plant.

watershed A region or land area drained by a single stream, river, or drainage network; a drainage basin. (36 Code of Federal Regulations 219.19).

watershed condition The state of a watershed based on physical and biogeochemical characteristics and processes (36 Code of Federal Regulations 219.19).

wetland Is an area that under normal circumstances has hydrophilic vegetation, hydric soils, and wetland hydrology.

whole tree logging A logging system where trees to be harvested are cut off at the base and the entire tree hauled to the landing to be processed into logs.

wild horse range Means an area specifically designated from a Forest Service wild horse territory or Bureau of Land Management herd management area to be managed principally, but not necessarily

exclusively, for wild horses (36 CFR 222.60 (b)(14) and 43 CFR 4710.3-2). Nationally, there are four specific "ranges" thus far, one of which is the Bureau of Land Management portion of the Pryor Mountain Wild Horse Range.

wild river Within the Wild and Scenic River Act, a tentative classification of those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.

wild and scenic river A river designated by Congress as part of the National Wild and Scenic Rivers System, which was established in the Wild and Scenic Rivers Act of 1968 (16 United States Code 1271, (note) 1271–1287) (36 Code of Federal Regulations 219.19).

wilderness An area of land designated by Congress as part of the National Wilderness Preservation System that was established in the Wilderness Act of 1964 (16 United States Code 1131–1136).

wildfire A naturally-caused wildland fire (for example, lightning) or human-caused fire, and considered an emergency management situation.

wildland fire Any nonstructure fire that occurs in the wildland. There are two types of wildland fire: unplanned (natural or human-caused wildfire) and planned (prescribed fire).

wildland-urban interface A term as defined by the Healthy Forest Restoration Act § 101. It is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the wildland-urban interface is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA, for full text see HFRA § 101.)

winter range The portion of the overall area a species inhabits where the majority of individuals are found from the first heavy snowfall to spring green-up, or during a site-specific period of winter. In the Rocky Mountains (generally including the montane portion of the plan area), winter range areas tend to have a relatively low amount of snow cover.

woody draws Also known as green ash draws, are draws with an overstory of woody vegetation, predominantly of green ash, and an understory of grass, forbs, or shrubs. Other hardwoods such as box elder, paper, birch, or aspen may be a minor component. Woody draws must generally be approximately 500-feet long for purposes of application of plan components. These ecosystems are found on the Sioux and Ashland Ranger Districts and provide important habitat for many wildlife species, game and non-game, as well as an important component (shelter and forage) for livestock grazing. The vegetation is a result of higher moisture conditions than in the surrounding area but surface water if any, running through the area is generally short term.

xeric Environment or habitat containing little moisture; very dry.

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